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THE INSTITUTE OF GOVERNMENT AND PUBLIC AFFAIRS
UNIVERSITY OF ILLINOIS

ENERGY AND ENVIRONMENT: AN INTERGOVERNMENTAL PERSPECTIVE

Edited by Boyd R. Keenan

FINAL REPORT OF THE OHIO RIVER VALLEY ASSEMBLY

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ENERGY AND ENVIRONMENT: AN INTERGOVERNMENTAL PERSPECTIVE

Edited by Boyd R. Keenan

Final Report of the Ohio River Valley Assembly
Hueston Woods State Park, College Corner, Ohio
October 10-12, 1977

Supported by the U.S. Department of Energy
and the U.S. Environmental Protection Agency
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JANUARY 1978

FOREWORD

The intergovernmental character of the nation's energy and environmental problems is now well known. But the various regions of the country face unique challenges which must be met by different kinds of cooperative intergovernmental strategies. Recognizing the increasing importance of one particular key region in national energy and environmental affairs, the University of Illinois Institute of Government and Public Affairs sponsored the Ohio River Valley Assembly at Hueston Woods State Park, College Corner, Ohio, on October 10-12, 1977.

Grants to support the Assembly were awarded by the U.S. Energy Research and Development Administration (now absorbed by the Department of Energy) and the U.S. Environmental Protection Agency. The Ohio River Division of the U.S. Corps of Engineers provided logistical assistance in the conduct of the Assembly. None of these agencies, of course, is responsible for the contents of this volume.

Contained here are the background papers, comments by legislators, speeches, and final report of the Ohio River Valley Assembly. All Assembly speakers and authors were accorded total freedom in expressing their views. Many of the topics discussed during the Assembly and covered in the final report are understandably controversial. Therefore, no individual participant should be held personally accountable for interpretations of others or for the contents of this report.

Aside from Institute staff and background paper authors, attendance at the Assembly was limited to government officials. Participants included about seventy representatives from local, state, and federal governments and from several regional organizations with particular responsibilities in the Ohio River Valley.

A complete list of participants is included at the end of this volume. The participants were divided into three round-table sections for discussion, and the final report was adopted by participants at a final plenary session.

We wish to thank the funding agencies, speakers, background authors, staff, participants, and the planning committee for contributions to the Assembly. We are particularly grateful to Dr. James Kellett of the Office of Education, Business, and Labor Affairs, U.S. Department of Energy, for his early and continuing encouragement in planning the Assembly. Also of much help was Mr. Lowell Smith of the Office of Energy, Minerals, and Industry, Office of Research and Development, U.S. Environmental Protection Agency. Special appreciation is due Ms. Eileen Schmitz and Ms. Stephanie Kaylin (formerly Cole) for general editorial assistance.

Finally, we must note with sadness that Dr. Thomas G. Fox, coauthor of a background paper and long-time national leader in intergovernmental scientific affairs, died in Pittsburgh, Pennsylvania, on November 28, 1977. As a member of the planning committee and as a resource specialist during the Assembly, he made major contributions.

Samuel K. Gove
Assembly Chairman and Director,
Institute of Government and Public Affairs

Boyd R. Keenan
Assembly Director and Editor

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REPORT OF THE ASSEMBLY

REPORT OF THE ASSEMBLY

At the close of their discussions the participants in the Ohio River Valley Assembly, meeting at Hueston Woods State Park, College Corner, Ohio, October 10-12, 1977, reviewed as a group the following statement. The statement represents general agreement; however, no one was asked to sign it. Further, it should not be assumed that every participant subscribes to every part of the statement.

The economic and environmental well-being of Illinois, Indiana, Kentucky, Ohio, Pennsylvania, and West Virginia dictates that portions of these states contained in the Ohio River Valley be viewed by the states themselves and the federal government as a natural unit for energy development and environmental protection. This conclusion was reached by Assembly participants, who included state legislators, state executive and local officials, representatives of regional and national governmental organizations, federal officials, and university faculty.

The Assembly asserts that failure to recognize and address the valley's central role in future energy affairs and related environmental matters could significantly contribute to national economic stagnation and result in further environmental degradation. A renewed and sustained commitment to the parallel concepts of public participation and responsive leadership in energy and environmental questions is essential if the valley is to avoid undesirable and unprecedented consequences.

The Ohio River Valley contains an abundance of natural resources which lends itself to many uses, such as agriculture, commerce, industry, recreation, and transportation. We believe that the abundance of coal and water and the availability of a modern water transportation system will necessarily be integral parts of the country's future energy scene. The Ohio River Valley should serve as a prototype to demonstrate that these resources can be

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wisely utilized over the foreseeable future to meet the challenge now pervading virtually every aspect of its social and economic life. For these reasons, the following specific recommendations are offered:

Through direct communication from representatives of the Assembly, the governors of the six Ohio River Valley states should be supported and encouraged in their pursuit of mutual planning for the orderly development and use of energy resources in the region. A forum is needed to open and maintain communication among these six Ohio River Valley states and between these states and the federal government. The Assembly recommends that in this process the governors enlist the advice of an advisory body consisting of state legislators, local officials, and members of existing federal and regional agencies whose jurisdictions extend throughout the six states. Mechanisms for participation by the public and by professionals in the policy and technical areas under consideration should be developed.

Those agencies of the federal government having environmental and energy responsibilities in these six Ohio River Valley states, in concert with the member states, should develop consistent guidelines for the region. In particular, the Environmental Protection Agency and the Department of Energy should ensure that decisions flowing through their regional offices be consistent and compatible as they are applied to the region.

BACKGROUND PAPERS

INTRODUCTION: THE OHIO RIVER VALLEY AT THE CENTER OF THE AMERICAN ENERGY DILEMMA

Boyd R. Keenan

> The Valley of the Ohio, without doubt, comprehends a larger quantity of fertile land, a more extensive and diffused interior navigation, together with a more salubrious climate, than any other portion of the temperate zones of the globe. . . . The resources of the finest iron and lead, of coal and salt, are spread over this section of the United States in a profusion unequalled in the world.
> (Mann Butler, *Valley of the Ohio,* 1853)

These words were penned by an early historian who believed the promise and problems of the Ohio River Valley were symbolic of "the great torrent of civilization" spilling across the United States a decade before the Civil War. Prior to the Arab oil embargo of 1973-74, most Americans — even residents of the valley — would likely have smiled at such dramatic assertions. But in the autumn of 1977, as the country awaits congressional passage of legislation to establish the nation's first energy "policy," the historian's declarations are not a source of amusement.

It is now certain that provisions of energy legislation soon to be enacted by Congress will place the Ohio River Valley even more firmly at the center of the American energy dilemma. As readers of this paper well know, the President and Congress have decided that coal and nuclear fuel must supply the overwhelming portion of this nation's energy needs between now and the year 2000. It is inevitable that the Ohio River Valley will become an arena in which many of the most controversial coal and nuclear issues will be debated at all levels of government and between these various levels. Hence the topic of this Ohio River Valley Assembly — "Energy and Environment: An Intergovernmental Perspective."

DEFINITION OF THE VALLEY

But what is really meant by the Ohio River Valley? For the purpose of this Assembly, the valley is defined as consisting of portions of the six states which border the Ohio River. These states are Illinois, Indiana, Kentucky, Ohio, Pennsylvania, and West Virginia. The Ohio River is formed by the confluence of the Allegheny and Monongahela rivers at Pittsburgh, Pennsylvania, and flows southwesterly for 981 miles before it empties into the Mis-

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sissippi at Cairo, Illinois. Thus, this intergovernmental conference was designed primarily to deal with the river itself and the land area contained in what hydrologists call its drainage basin in these states. The Assembly will focus on the intergovernmental problems faced by these six states and their subdivisions as they interact with each other, the U.S. federal government, and regional entities.

Hopefully, our attention to this defined area within these six states will not cause discomfort to those who prefer to deal with river valleys as "basins" in a strict hydrological sense. Such a technical definition of the Ohio River Basin would include portions of eight other states: Alabama, Georgia, Maryland, Mississippi, New York, North Carolina, Tennessee, and Virginia. Areas in most of these states are inconsequential in terms of square miles and remote from the valley as popularly defined.

But one of these states — Tennessee — is so critically entwined politically with the six-state valley that the Assembly participants must make a conscious effort to place it in perspective. One reason is that Tennessee contains a major portion of the Tennessee Valley Authority (TVA), probably the nation's most controversial regional organization. The Tennessee River is a tributary of the Ohio, but it empties into the Ohio only about thirty-five miles upstream from the Ohio's mouth.

Thus both hydrological and political factors encourage an erroneous public perception that the Tennessee River sub-basin — running as far south as Alabama, Georgia, and Mississippi — is somehow separate from the Ohio River drainage basin. Developing conditions, including sensitive interactions between TVA, the Ohio River Valley states, and federal agencies such as the Environmental Protection Agency (EPA) — will soon likely bring these matters into sharper focus.

COAL'S CENTRAL ROLE

Returning now to the significance of an increasing dependence upon coal for the six-state valley, the prominence of this energy fuel in identifying valley energy and environmental problems is apparent from coal production figures released annually by the National Coal Association. In one rather recent typical year, five of the six valley states led the nation in coal production. Kentucky was first with 140 million tons per year. The other states follow: West Virginia, 108 million tons; Pennsylvania, 83 million tons; Illinois, 58 million tons; and Ohio, 47 million tons.[1] And during the year cited, the sixth valley state, Indiana, ranked ninth in production behind Wyoming, Montana, and Virginia.

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[1] Production for a "typical" year is given here in part because strikes in past months have distorted usual comparisons.

Although the future national emphasis on coal is expected by many to increase production at a more dramatic rate in western states than in the Ohio River Valley, the above figures illustrate the pervasiveness of coal in the area. Also, in the international context the high-Btu content of Ohio River Valley coal is striking when compared to western coal. For example, specialists have estimated recently that the Ohio River Valley area contains more chemical energy than that embedded in the oil reserves of Saudi Arabia. Of course, the high sulfur content of much valley coal, particularly in western Kentucky and southern Illinois, is a factor that any Assembly such as this cannot possibly escape.

Many laws at the federal level, including the strip-mining measure signed into law just recently, are new elements in an array of legal forces certain to sharpen the energy-environmental conflict in the Ohio River Valley in the months and years ahead.

NUCLEAR ENERGY IN THE VALLEY

Coal's dramatic presence in a number of the valley states is leading many to underestimate both the potential role of nuclear energy in the valley as a whole and the scale of future problems surrounding nuclear facilities. However, just a few months ago a spill at a Pennsylvania nuclear power plant — admittedly with few, if any, harmful effects — called attention of leaders "downstream" to the presence of nuclear facilities in the valley and to an apparent absence of mechanisms to deal with valley-wide emergencies. Publicity accompanying the spill, deserved or not, also focused valley-wide attention upon the difficult task of maintaining communications among a host of state, federal, and regional agencies.

Chemical spills in the Ohio River have become almost commonplace over the past few years. But the Pennsylvania episode apparently represented the first nuclear-related spill to grab headlines throughout the valley. To at least a few citizens becoming concerned with a broad array of energy-environmental problems, the event served as a catalyst for investigation of existing regional institutions and the possible need for new arrangements.

As this examination continues, some simple facts emerge. Unprecedented energy-linked environmental issues in the Ohio River Valley will accompany this nation's understandable obsession with development of domestic coal and nuclear fuel sources. No region will be more impacted by such problems, most of them interstate in character. Perhaps no region in the country is so visibly lodged in the eye of the energy policy "hurricane." True enough, as already noted, certain western states may be faced with greater extraction problems immediately, but the absence of water in those areas almost certainly will serve to slow the stampede. The Ohio River Valley contains bountiful amounts of water (for both transportation and processing), coal reserves nearby, sparsely populated stretches apparently ideally suited for power plants, and a surprisingly long history of nuclear power interests.

The upper reaches of the river in Pennsylvania already provide the sites for nuclear plants in operation. Construction is nearing completion on another nuclear plant in the mid-section of the valley. And still further down the river — between Cincinnati and Louisville — a construction permit for still another nuclear plant has been awarded by the Nuclear Regulatory Commission.

Finally, there is little public awareness throughout the valley that two of the nation's three commercial uranium enrichment facilities are located squarely in the valley (at Paducah, Kentucky, and near Portsmouth, Ohio). The third enrichment plant, while outside the valley as defined in this paper, is in the Ohio River "basin" near Oak Ridge, Tennessee. Recent announcements regarding expansion of the facility near Portsmouth emphasize the importance of the valley for the future of the nation's nuclear industry. As early as 1974, a reputable historian declared that "in no other district in the world are so many men and machines at work with the atom."[2]

INTERSTATE CONFLICTS

Probably too much has been written already about the potential for a new "war between the states" over the relative merits of nuclear and coal fuel for electric power plants. But to avoid the reality of tensions surrounding the topic in this Assembly would be irresponsible. South of the river, in the nation's two largest coal-producing states, Kentucky and West Virginia, leaders argue vehemently for the use of coal and warn of the dangers of nuclear power.

Future conflict between states is not limited to issues stemming from rivalries originating with interests *across* the river from one another. Historically, controversies related to water have pitted the states and communities in the lower valley against those in the upper valley. This pattern is old. Dumping trash or poison upon one's downstream neighbors has long stimulated arguments. Funds necessary to put monitoring equipment in place will be difficult to acquire, and effective institutional arrangements may be almost impossible to devise. But the required technology to handle water monitoring apparently is available, and experts are generally in agreement. This agreement seems to apply both with regard to technology and to the health effects of discharges.

But energy-related problems associated with interstate air quality management reveal a far different story. Coal-burning power plants represent a prime example. There is agreement neither on the effectiveness of available technology (for example, scrubbers) nor the health effects of power plant stack emissions. Even more important, certain studies over the past months appear to confirm earlier suspicions that meteorological conditions could combine with power plant emissions to transform the six-state valley region into an airborne pollutant transport corridor capable of unprecedented environmental abuse.

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[2] Walter Havighurst, *The Heartland: Ohio, Indiana, Illinois*, rev. ed. (New York: Harper and Row, 1974).

POLITICS AND PREVAILING WINDS

For this Assembly, perhaps no other fact is so critical. Prevailing and persistent winds are playing tricks with the political system. As noted above, the tradition in the valley has been for down-valley states and communities to attack their northeastern neighbors for abusing the river's water. But research has now shown that a favorite path of pollutants from power plant and industrial facilities is straight up the valley toward the head of the river. (One paper in this collection, Bromberg and Fox, "Intergovernmental Cooperation in 'Up-Valley' Pollution Transport Management," deals exclusively with this problem.)

Virtually all power plant siting projections assert that most future plants will be sited along the main stem of the Ohio River and its principal tributaries. Thus, these lines of preferred sites are co-directional with the prevailing movements of air masses under persistent wind conditions. These emissions become combined with previously emitted upwind power plant emissions, thus producing a "cascading" effect on ambient pollutant concentrations. If these analyses are accurate, the projections of plant construction being made by public utilities in the valley would likely result in a violation of existing primary sulfur dioxide twenty-four-hour ambient standards after 1985.

One recent report, urging a review of procedures, suggests that those currently being utilized by the EPA regional offices in reviewing new source applications are not designed to capture this "corridor" effect.[3] Legal and institutional implications of this problem alone call into question broad existing organizational arrangements for managing energy and environment in the valley. EPA's problems in attempting to monitor the environmental behavior of the various sectors in the valley are compounded by the fact that three separate regional administrations (Region III, Philadelphia; Region IV, Atlanta; and Region V, Chicago) are responsible for various portions of the valley.

Thus, many of the conventional institutional approaches to energy and environmental problems in the valley must be reconsidered. Treatment here has barely scratched the surface of energy-related problems of air and water quality. Space does not permit attention to equally serious questions such as water supply, transportation, and land use. And over the past four years — since the Arab oil embargo of 1973-74 — the question of regional capital availability has been cross-stitched with the more visible questions within the energy-environmental arena.

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[3] James J. Stukel and Boyd R. Keenan, "Institutional Requirements for Future ME^3 Project Management" (paper delivered at the Third International Conference on Environmental Problems of the Extractive Industries, Dayton, Ohio, November 29–December 1, 1977).

During a meeting of an advisory committee created to provide guidance in the planning of this Assembly, the group urged that background papers and speakers emphasize institutional questions and examinations of possible need for new interstate organizations to attack energy and environmental problems. Against the backdrop of the above discussion, then, a set of questions cannot be avoided:

— Can any of the existing regional organizations with responsibility for all or portions of the Ohio River Valley be strengthened to address effectively the emerging energy and environmental challenges now upon us?

— Should entirely new multistate regional institutions be considered for the valley?

— Should the energy sector — both private and public — be encouraged to institute new voluntary mechanisms to meet the problems discussed above?

— Do broad energy-environmental problems of the Ohio River Valley threaten the future health and security of the nation to a degree that regional lines of such agencies as EPA should be redrawn so that the valley itself would constitute a separate region?

— Is a crisis so apparent that attention should be given to some form of preemption by the federal government for energy and environmental management of the valley?

AN ENERGY "MAGINOT LINE"?

Even informal discussions of these questions almost always bring emotional responses. Not a single issue noted in this discussion can be divorced from the much-publicized "frost belt–sun belt" controversy. As in so many earlier political and economic crises in this country, the Ohio River itself, particularly the lower 700 miles, could become an energy "Maginot Line" between the lower regions of the frost belt and the upper regions of the sun belt.

Similarly, the seeds of the much-feared energy "balkanization" of which President Carter so often speaks have been sown in the valley. Evidence of involvement of these states in regional groupings not "valley" oriented has been plentiful. The most recent example of this was the National Governors' Conference in August 1977 (at which the organization's name was changed to the National Governors' Association). Illinois, Indiana, and Ohio governors and/or delegates attended an "ancillary" session of a fledging organization known as the Great Lakes Governors' Caucus. At the same hour, Pennsylvania's governor was participating in a meeting of the Coalition of Northeastern Governors.

Energy-related forces caused both groups of states to organize themselves several months ago. For this Assembly, the coalition is of particular significance. Central to the organization of the entity was a proposal through which seven northeastern states, including Pennsylvania, would create a regional energy development corporation. Such a corporation would use federally guaranteed taxable bonds to finance energy development projects in the region. The idea for the corporation apparently came from Governor Hugh Carey of New York. Other governors involved, in addition to Governor Milton J. Shapp of Pennsylvania, are those of Connecticut, Massachusetts, Rhode Island, Vermont, and New Jersey.

Governor Carey and New York congressmen are leading an effort to have Congress approve a TVA-style corporation which would spend a considerable portion of a multibillion budget on Appalachian coal reserves. One spokesman for the coalition has noted the possibility of encouraging Appalachian states to form their own energy corporation, which would sell coal and electric power to the northern states.

Such discussions illustrate how critical broad energy problems are being viewed by clusters of states formed almost entirely on the basis of energy needs. Of pertinence for this Assembly, of course, is the question of further proliferation of institutional structures which might well exacerbate the already intense conflicts between environmental protection elements of society and those concerned with energy development.

STAKES FOR THE AMERICAN POLITICAL SYSTEM

Our technologically oriented nation has spawned many "crises" in the past two decades. A space race. A missile gap. Racial unrest. Decaying cities. Rural poverty. An unpopular Asian war. Ecological abuse.

These crises — many of which still plague America — one by one have been effectively described by our media. Even those which remain with us unresolved have sporadically gripped the emotions of major segments of the public. Many minds have been focused on these substantive issues, many minds have been changed, and intergovernmental cooperation has been initiated.

But the sheer magnitude and complexity of the energy-environmental dilemma seem to defy media presentation capable of inspiring cooperation between the competing private sectors and between the government agencies charged with oversight of energy development and environmental protection. Conspiracy theories continue to flourish. Stereotypes of greedy industrialists damaging children's lungs are matched by those of ecological maniacs seeking to strip factory workers of earnings for their families.

Some of us feel that the stakes involved in the battle to obtain intergovernmental cooperation by shattering these stereotypes are the highest in any crisis yet encountered by the American political system. Failure to achieve this objective within a reasonable period could spell the end of our political system. No one knows what represents a "reasonable period." A reasonable period could be defined in terms of only months if international forces should produce an extended foreign oil embargo. In such an event, failure of the Ohio River — which, by some measures, moves more freight than the Panama Canal — to do its job in the face of intergovernmental obstacles could amount to the end of the American polity.

If we are spared such an embargo over the next few years, a "reasonable period" might be a decade or more. Some of our best minds believe the issue of food versus fuel will threaten the world at large before we reach the year 2000. And surely evidence suggests that no valley on the face of the globe has more potential for violent disagreements between agriculturalists and energy developers.

Finally, if we move into the twenty-first century with our political system relatively intact, we might be able to stretch the "reasonable period" for several additional years. But the time may very well come early in the twenty-first century when technology and population will produce a public policy whereby extra-regional use of Ohio River water will alter the traditional riparian approach to water management. Such a development would sorely test our system.

Of course, all such long-range speculation assumes that we shall avoid single-event disasters such as nuclear accidents and that the most alarmist of those warning now of possible catastrophic effects from stagnant air masses in the Ohio River Valley will be proven wrong. But just as thinkers two hundred years ago predicted that the American continent would be developed from ocean to ocean so can one reasonably assume that the political system controlling that same continent will some day turn to the precious water and chemical energy of the Ohio River Valley to sustain itself. To help prepare all levels of government for that day — whether it be the year 1978 or well into the twenty-first century — is the purpose of this Ohio River Valley Assembly.

INTERGOVERNMENTAL ENERGY AND ENVIRONMENTAL CHALLENGES IN THE OHIO RIVER VALLEY: THE VIEW FROM WASHINGTON

Conley H. Dillon

In the second half of the twentieth century all problems are dominated by the concept of interdependence. The challenge of energy and environmental problems is overloaded with the characteristics of this concept. In our federal system the view from Washington is significant in that there is a higher degree of centralization in national policy than in the policies of the fifty states or those of the Ohio River Valley states. Washington is the power center for establishing the policy and administrative framework for national programs. The dichotomy of energy and environment presents all features of conflict resolution and deepens the complexities of intergovernmental policy and administration. Truly, it presents a challenge of massive proportions to the American federal system.

The Ohio River Valley as defined for this Assembly is in the heartland of industrial America and constitutes the center of the greatest energy potential in the world. This potential, if planned, developed, and managed properly, will materially assist in moving the United States toward energy independence. The valley's strategic central position as a producer of energy from both coal and enriched uranium forces the federal government to give the region special attention. Coal, particularly, is the focus of future developmental investments, and the Ohio River Valley region contains roughly 33 percent of the nation's coal resources.

What is and what will be the policy of the federal government toward state and local participation in developing a viable energy and environmental process? Before attempting to explore the subject of the Washington view, it seems desirable to identify the principal components of the federal policy development environment. First and foremost is the U.S. Congress, which establishes program policy and appropriates funds for its implementation. The views from Capitol Hill are numerous, diverse, conflicting, and frequently contradictory. They only become specific when legislation is enacted and funds are appropriated. Since Congress is sensitive to pressures from states and districts, its formal actions reflect an assessment of what the voters will support. The intergovernmental influence is strongly expressed during the legislative process by governors individually, by the National Governors' Association, the Council of State Governments, the U.S. Conference of Mayors, and other public interest groups. Consequently, the congressional viewpoint is a composite of industrial, environmental, and governmental viewpoints and pressures, a significant one being the intergovernmental influence.

Of equal importance is the development of policy in the executive branch. The President proposes much of the legislation passed by Congress and after enactment develops administrative policy for program operation. Likewise of great significance is the presidential power of appointing key policy leaders. The executive branch also organizes programs and determines the reality of the interface between levels of government in program administration. The perceptions and attitudes of federal employees in Washington and the field offices are also of paramount importance. The significance of the role of state and local officials is determined by their inputs into the decision-making process. This role is directly affected by the style and delegation of authority to federal field offices and state and local officials.

Can some trends be ascertained from this maze of expression of policy views which will be helpful in focusing on the contemporary Washington outlook on intergovernmental relations? Many observers agree that the trend in the 1970s toward more bloc grants and revenue sharing as a replacement for categorical grants is an indication of a federal view more favorable to state and local control of resources. This trend has been pressed by the executive branch and has been reluctantly approved by Congress. It would seem to support the often-expressed federal position that the federal-state relationship is one of cooperation rather than conflict and that the state and local governments should have a partnership role in program development and administration. Do energy and environmental programs reflect this trend? This is the principal question addressed in this paper.

RECENT ACTIONS BY CONGRESS IN ENERGY AND ENVIRONMENT

The passage by the House of Representatives of a proposal known as the National Energy Act and the signing by President Carter of legislation creating a new Department of Energy represent the most recent specific evidences of the congressional view of the President's plan for a national energy policy. While final decision on energy legislation awaits Senate agreement, it appears almost certain that it will occur in this session of Congress. What intergovernmental energy and environmental challenges are created by this legislation? What does this new policy expression, combined with the creation of a new cabinet-level Department of Energy, reveal about the Washington view? To answer these questions, it will be necessary to select some typical phrases from the legislation which focus on the intergovernmental and environmental features of the proposed law.

The general purpose of House Report 8444 is stated succinctly: "to establish a comprehensive national energy policy. . . ." The following statement from the bill is related directly to one of our topics: "Consistent with all federal, state and local environmental requirements, the United States must convert the Nation's economy to greater utilization of coal."

The sentences quoted above give the crucial elements of the probable new energy policy. Highlighted in the introductory sentence of this statement is a clear mandate to meet the environmental requirements of federal, state, and local governments in producing energy. This plainly states Congress's view that energy and the environment are intertwined. Also expressed is the goal of "developing" and "converting" to greater utilization of coal. If, as expected, the Senate approves the legislation, this policy expression will be the central guideline for developing the national energy policy.

What are the direct references in the legislation to state and local government participation in developing policy and regulatory activities? In the section entitled "Utility Programs" the state public service commission or other regulatory authority is given a direct role in determining the nature of the activities of public utilities in supplying and installing residential insulation. The state agency may submit a plan for residential energy conservation, which must be approved by a federal energy administrator. In carrying out the purposes of this section the administrator "shall" consult with "appropriate public officials and organizations of public officials and with consumer groups."

An important section of the National Energy Act (101B) entitled "Supplemental State Conservation Plans" provides that in preparing guidelines for the plans the administrator "shall solicit and consider the recommendations of and be available to consult with the governors of the states as to such guidelines." In addition, the administrator "shall invite the governor of each state to submit . . . a proposed supplemental energy conservation plan," and "the administrator may grant federal financial assistance" for the development of such plans. To carry out this section, funds are authorized to be appropriated.

Funds are provided in another section of the bill for energy audits and technical assistance for energy conservation projects for schools and health facilities if states produce appropriate plans. In various parts of the bill the new Federal Energy Regulatory Commission (FERC) may delegate authority to state regulatory bodies to set standards and implement rules. State utility commissions are eligible for grants for staffing and participation in developing "innovative rate structures and for representation before the FERC or other federal agencies." Provisions are also made for grants promoting federal-state cooperation on siting, developing small hydroelectric power projects, and converting from gas and oil to coal in new and existing installations.

The proposed legislation highlights the connection between energy and the environment in several sections. Delaying or avoiding compliance with environmental requirements is prohibited in carrying out the provisions of the legislation in conversion to coal.

The emphasis on intergovernmental partnership is specifically provided in the section on monitoring studies by the Environmental Protection Agency (EPA) in consultation with states, the National Governors' Association, other federal agencies, and interested persons and organizations. Within a year after the enactment of the law, a detailed report must be made to Congress on the socioeconomic impact of expanded coal production on states and local communities.

Strip-mining Legislation

The Surface Mining Control and Reclamation Act of 1977, signed in August, was many years in the making. Similar legislation was vetoed by President Ford, and it took the support of the new President to ensure its enactment. It reflects the consensus view from Washington that in spite of the need for greater coal production, environmental protection must be strengthened. The legislation will be administered under the present Secretary of Interior (Cecil Andrus), who is a former governor and who is regarded as an environmentalist. Recently, the secretary told a joint state-federal workshop writing strip-mining regulations that he would listen to the states and would not force them to accept what the federal bureaucrats thought they needed. Under this legislation the states are primarily responsible for setting standards for mining and reclamation, and only when the states are unwilling to do this will the federal government become involved. Unfortunately, the record of the states in enforcing regulations has been spotty.

THE PRESIDENT: POLICY INITIATIVE

Since we are concerned in this review about the present and the future, we will consider only views and actions of President Carter, who will hold office during the crucial years of developing energy and environmental policy. In his presidential campaign and during his brief period in office the President has spoken out in support of constraints on activities which damage the environment. He also has taken major steps in developing a national energy policy which in several respects threatens the quality of the existing environment. As a former governor, he is highly conscious of the state role in our federal system and appears to be concerned about strengthening the intergovernmental cooperative aspects of his energy and environmental policies.

A brief examination of three major presidential actions in the legislative sphere provides clues in determining the presidential view. The major presidential initiative has been the National Energy Plan, unveiled April 20, 1977. As already noted, this plan has produced one important piece of legislation, the establishment of a cabinet-level Department of Energy (DOE). Another major legislative action has been the support and signing by the President of the Surface Mining Control and Reclamation Act of 1977.

In his National Energy Plan the President stresses conservation and the necessity to switch from oil and gas as principal sources of supply to alternate fuels, primarily coal. The following brief statement from the plan confirms this view: "Resources in plentiful supply should be used more widely as part of a process of moderating use of those in short supply." To bolster this policy statement statistically, the relevant facts cited are that the coal supply in the United States constitutes 90 percent of total fossil reserves but is used to meet only 18 percent of energy needs. Seventy-five percent of energy needs is met by oil and gas, which constitute less than 8 percent of reserves in the United States. The plan sets a goal of increasing coal production by two-thirds, amounting to more than 1 billion tons per year by 1985.

Policy statements in the plan meet the energy-environmental conflict squarely. "National policies for protection of the environment must be maintained" is a basic principle. This principle is supported by the following explanatory statement:

> In the long run, there is no insurmountable conflict between the twin objectives of meeting energy needs and protecting the quality of the environment. The energy crisis and environmental pollution both arose from wasteful use of resources and economic and social policies based on the assumption of unlimited and cheap resources. The solutions to many energy and environmental problems follow a parallel course of improving efficiency and harnessing waste for productive purposes.

What does the plan contain on states and regions? For example, it points out that Appalachia is a region of large energy producers and maintains that "the plan must assure that policies are equitable . . . that the special needs of each region are met. The environmental quality of producing states . . . protected. Producing states should be fairly compensated. . . ." An additional pertinent statement is made: "The federal government can enact national policies to further these goals and can recognize that the states also have important responsibilities for the formulation and execution of energy policy. It would be desirable for states to develop energy policies that complement the plan while meeting local and regional needs."

In describing how the federal system can function under the plan a section entitled "State and Local Government Participation" makes the following points:

- The foundation must be a partnership and understanding among the federal government and state and local governments.
- Many of the programs proposed cannot succeed without active cooperation of state and local governments. Their aid will be needed to harmonize the conflicting private and public interests.
- States can develop an adequate repository of information for energy decision making. The states' role in the utility reform program is crucial.
- The federal government will assist states and localities in coping with new energy developments, principally from coal utilization.

This section places heavy demands on local communities for schools, roads, sewage treatment facilities, and all aspects of the public infrastructure. If after a review of existing federal programs gaps are found in federal support, "additional legislation will be proposed." The President also has promised to meet periodically with governors to discuss actions that the states can take to deal with the energy problem.

ENVIRONMENTAL PROTECTION AGENCY: POLICY ADMINISTRATION

The numerous complex technical legislative acts which determine the missions of the Environmental Protection Agency make it impossible in a short space to comment on all of the major intergovernmental features. Consequently, the illustration of the style and perspective of EPA policy makers and administrators will be limited to two significant aspects of the program, Section 208 of the Federal Water Pollution Control Act of 1972 and the EPA Interagency Energy/Environmental R&D Program.

Section 208 Water Quality Management Program

Like most federal programs, this section must be implemented at the state and local levels. An excellent indication of the viewpoint of those in charge of the program can be ascertained from the instructions given subordinate governmental units responsible for implementing it. The important document for this purpose, "Guidelines for State and Area-wide Water Quality Management Program Development," sets forth in great detail each step necessary for meeting the requirements in the program. The style and tone are set in the statement of purpose in the introduction: "The purpose of these guidelines is to assist the states in setting up a management program and institutional arrangements to integrate water quality and other resource management decisions."

The goal of the program is to require states to assume responsibility for preparation of water quality management plans. To accomplish this, EPA has set forth in detail required elements and program components "which state and designated area-wide agencies are to include in their programs." A basic document which contains the details of management is the "State/EPA Agreement," a kind of treaty between the states and EPA.

The intergovernmental flavor of EPA policy is strongly asserted in every aspect of the guidelines. The term "require the state" is frequently used. The phrase "determine at the discretion of the state" is used afterwards to indicate choices by the states after requirements are met. The states are responsible for ensuring public participation and intergovernmental input by advisory groups. Key elements in the program are in the regulatory features, which may be performed by existing regional, state, and local agencies. The federal legislation and EPA require "clear, explicit, and overall authority for regulatory activities."

EPA is committed to the management, prevention, and control of pollutants from mining sources under Section 208 authority as well as under other sections of the act. It can initiate a program in conjunction with states although the primary responsibility rests with the states.

Interagency Energy/Environment R&D Program

A glaring weakness of the complexity of federal programs has historically been the lack of coordination. Fortunately for the Ohio River Valley, there is an organized effort to coordinate the energy and environmental research activities funded by the federal government under auspices of the EPA. This umbrella, entitled the Interagency Energy/Environment Program, supervises research-and-development (R&D) activities performed by several federal agencies in addition to EPA. Seventeen different federal agencies and departments conduct research in their areas of expertise.

It appears that in the immediate future R&D funds will be heavily weighted toward facilitation of near-term coal use, development of flue gas desulfurization systems, analysis and control of environmental effects from coal extraction, characterization and monitoring of resultant pollutants, and determination of coal conversion processes. An example of a program of significance to the Ohio River Valley is the interagency federal and state demonstration of reclamation of surface-mined areas at Elkins, West Virginia. An additional example is the Ohio River Basin Energy Study by eight universities which are assessing through EPA funding the possible environmental, social, and economic impacts of the proposed concentration of power plants along the river.

Some Administrative Views

EPA has been in charge of administering environmental protection since 1970 and has acquired considerable experience. This experience has been influenced by the failure of both the executive branch and Congress to provide adequate funding to fulfill the missions of the agency. Consequently, EPA has been forced to advance some of the deadlines originally set for state action. (An example is state comprehensive water management plans under Section 208.) With increased appropriations becoming available for construction, administrators must now look beyond the 1978 deadline for completion of plans and prepare for implementation. This will be the acid test of the program, especially in intergovernmental relations. Basically, this test involves the enforcement of the regulatory aspects of the program.

A high EPA administrator has recently made the following points: (1) Congress and the new administration must soon decide if sanctions will be imposed for failure to implement the plans; (2) one sanction would be the cut-off of funding; (3) since implementation is to be self-sustaining (by state and local governments), the job of federal managers is 75 percent political and 25 percent technical; (4) the states should have new monies for implementing plans in nondesignated areas, in which 50 percent of the population resides; (5) the federal government should leave the land-use control aspects to the states, area-wide agencies, and local governments.

A related view sometimes expressed is that existing area-wide agencies do not have the "police power" authority to apply regulatory sanctions. An example often cited is the council of governments. And there is little evidence to indicate that current state and area planning is remedying this situation.

THE REGIONAL APPROACH: THE FEDERAL VIEW

In the examination of reorganization possibilities by the Carter administration the question of the role and structure of regional bodies is still undecided. There is general disenchantment with the federal regional councils as bodies to coordinate federal units with state and local governments. The same is true of the interstate "Title V" regional planning commissions of the Department of Commerce. The federal regional councils could be strengthened, and the Title V commissions might be expanded to "wall-to-wall" nation-wide regional bodies with more powers and funding. Or both groupings may be replaced with new regional organizations. In any case, neither of these two units fits neatly in the Ohio River Valley geographic and political pattern. The six "valley" states are in three different federal regions. No Title V commission covers the Ohio River Valley. The Appalachian Regional Commission (ARC) covers parts of Pennsylvania, Ohio, Kentucky, and all of West Virginia; it is believed to be regarded highly by the new administration as the most effective regional intergovernmental agency. (The potential of the ARC is discussed below.)

The Ohio River Valley, directly encompassing parts of six states, is a perfect laboratory for using a regional mechanism for arriving at viable solutions to energy and environmental problems. Currently, several regional agencies in the region are concerned with the problems of energy and environment. The Ohio River Valley Water Sanitation Commission (ORSANCO) is the oldest and most successful. In 1948 an interstate compact creating ORSANCO was signed by eight states in an attempt to diminish pollution in the valley. The six states defined as "valley" states in this Assembly, plus New York and Virginia, hold ORSANCO membership. Today ORSANCO maintains a network of thirty-seven monitoring stations to measure water quality. With ORSANCO's encouragement, 319 out of 324 communities with sewer systems reportedly treat their water waste, and 70 percent of industry has effective treatment of wastewater.

Another organization, the Ohio River Basin Commission (ORBC), is comprised of all of the "valley" states plus Maryland, North Carolina, New York, Tennessee, and Virginia. ORBC was created under Title II of the Water Resources Planning Act (Public Law 89-80). Relevant federal agencies and regional organizations also are members. The primary function of this regional body is to review and coordinate subregional plans for water basins. Its chairman is appointed by the President, and the vice-chairman is elected by the states. Since it has jurisdiction over only one element, water, it cannot be a viable unit for cooperation in energy and environmental projects.

The Appalachian Regional Commission, created by Congress in 1965, is a federal-state agency of thirteen states, including parts of Kentucky, Ohio, and Pennsylvania, and all of West Virginia. It is the most successful example of intergovernmental cooperation since the voting power of the states on policy is equal to that of the federal government. It also sponsors multicounty planning and development agencies called local development districts (LDDs), comprised of elected officials, public representatives, and a professional staff. The staff and headquarters of the commission are located in Washington, D.C.

Fifty-four percent of the funding for ARC projects is provided by the federal government. In 1975 the Appalachian Regional Development Act was amended to expand the commission's authority to include the coordination of federal, state, and local efforts in anticipating alternate energy policies and practices, planning for growth to minimize environmental cost, and meeting the special problems generated by national energy policies.

During its twelve years of operation ARC has been appropriated over $3 billion. This amount has been almost matched by state and local spending.

Most of these expenditures have been directly or indirectly for environmental and energy-related projects. Direct expenditures are for sewers, water projects, land reclamation, fish and wildlife, land stabilization, health demonstrations, and timber development projects and research. Indirectly, the major expenditure for highways is important for energy production. In addition to providing funds to states and localities for projects under the customary 30 to 60 percent federal funding formula, ARC can supplement the regular federal grant by adding from 20 to 80 percent to hard-pressed local governments. A significant feature of the program has been providing funds for planning and research staff for state and substate regional bodies. Since the 1975 amendments, the ARC has launched a series of energy-related projects involving working relationships with the states, EPA, and the Energy Research and Development Administration (ERDA), now absorbed in DOE, to study the "environmental and socio-economic impacts of ... energy technologies." These studies have already identified twenty-eight sites for energy facilities, twelve of which have been analyzed in depth for their potential effect on the environment.

ARC has produced a supply/demand computer model for forecasting the impact of national energy policies on the price of coal and other fuels. The commission has also undertaken a study to document all of the state, local, and federal regulatory powers in each of the thirteen states and to recommend needed changes. A total of nineteen research projects will have been completed by ARC in 1977. Since ARC has developmental and planning authority over a wide range of energy and environmental matters, it can assist states and localities in responding to the federal challenge more than any existing regional body.

WILL WASHINGTON ENCOURAGE INNOVATIVE APPROACHES TO INTERGOVERNMENTAL PROBLEM SOLVING?

The answer to this query must await the future since it is not evident in the acts of Congress or in definite executive policy statements. Relevant questions regarding intergovernmental problem solving were posed in the *Working Document for the White House Conference on Balanced Growth and Economic Development* (held in early 1978). The central question under the heading "Assessing the Inadequacies of Government Structure and Processes" is, "How can government institutions, structures and processes be adapted so that they can better address problems of growth and development which cut across jurisdictional boundaries of contiguous governments?" Following are additional questions raised:

— How can growth and development problems which cross state boundaries and are regional in scope be dealt with more effectively?

— What is the assessment of the performance of present institutions for coping with multistate problems: interstate compacts, Title V commissions, the Appalachian Regional Commission, Title II basin commissions, etc.?

— Are any of these appropriate mechanisms or models for appropriate mechanisms for bringing about regional cooperation and, if so, how can they be strengthened and better coordinated?

— If they are not appropriate, with what should they be replaced or complemented?

— How should they relate to federal regional councils?

We may assume that these questions represent the latest White House thinking since they are in the form of a request for opinions for an important conference. They leave the door open for mild changes and innovations but scarcely hint at major innovations. The federal reorganization proposals and projects such as the new Department of Energy have focused on bringing existing institutions and procedures under unified direction rather than creating completely new formats. So it is unlikely that controversial proposals such as the creation of a TVA-type energy-environmental model will be regarded favorably. Falling in this classification would also probably be the northeastern governors' suggestion for a seven-state energy development-distribution corporation to fund coal mining in Appalachia. However, President Carter has called the latter an "appealing concept," and the governors hope to get the appropriate legislation introduced soon.

Another recent related proposal in this category is that of the National Academy of Public Administration to create federal regional organizations. Under this plan federal power would be delegated to the states to act collectively through interstate compacts to regulate siting, licensing, construction, and operation of nuclear facilities.

Amending the Appalachian Regional Development Act?

More plausible than these proposals is the possibility that the administration and Congress would consider legislative action to amend the Appalachian Regional Development Act to give the ARC jurisdiction over the Ohio River Valley and coal-producing counties of Indiana and Illinois. Thus, the six valley states could use this regional mechanism to solve energy and environmental problems intergovernmentally. Such action would, of course, require the concurrence of all the fifteen states involved. Both New York and Mississippi were brought under the jurisdiction of the commission by a similar legislative amendment.

In October 1975 in Knoxville, Tennessee, at a White House-sponsored energy symposium, the role of ARC in the energy crisis was clearly stated in an unanimously adopted resolution: "The Appalachian Regional Commission recognizes the critical role of the Region in meeting national energy goals. To help the Region carry out this role, the Commission commits itself to revise development strategies, reorder priorities and reprogram available funds to give higher priority to energy-related public investments and to provide for the Region's energy public investments and to provide for the Region's energy work force while at the same time protect the environment." To demonstrate its good faith, ARC at this symposium pledged $1 million and its staff resources to study energy impacts.

ARC is a political institution accustomed to carrying out negotiations among states and with the federal government. It has procedures and experience in compromises and "trade offs" and has felt the heat from both industry and environmental interests. The recent appointment of former North Carolina Governor Robert Scott as federal cochairman brings for the first time an experienced state leader to the federal leadership sector of the commission. Such an expanded ARC role has not been formally proposed so there has not been a Washington reaction. However, this action would not require major changes since it would use an existing institution.

INTERPRETING THE WASHINGTON VIEW

Interpreting Washington's view is as difficult as hitting a moving target because the view is constantly changing. There are, however, several constants which provide the basis for interpretation. A fundamental question raised in the introduction was whether the thrust of federal energy-environmental policy was toward a cooperative partnership with the states or toward conflict and federal domination. Many provisions in the House-passed legislation specifically provide for cooperation, and the rhetoric of the President and key officials in the executive branch emphasizes the role of the states.

Nevertheless, these programs are not primarily grants-in-aid but planning, management, regulatory, and funding arrangements. They are not in the revenue sharing–bloc grant classification but closer to the categorical type grant. The plans made by state and local units must contain specific elements. Requirements and deadlines must be met. Since these programs are regulatory in many respects, there are more "sticks" than "carrots" in the planning and management details. Since federal financing is limited, there are few incentives for state action except in planning and construction grants. With the exception of rationing and price control during World War II these programs contain the toughest regulatory elements in American history. They will create struggles between industry and environmentalists and tension among all levels of government. The states will be on the firing line, with the federal government supervising and penalizing. What is the Washington attitude toward strict conformance? As always, Washington will respond to pressures. Auto makers get an extension of emission standards and the states and local communities are given a delay to complete their management plans.

Always though, unless Congress makes changes, a day of reckoning will arrive. For example, numerous suits are currently being filed against industry and local governments for failure to meet water pollution deadlines. The federal view is that penalties must be paid. The new administration brings an unusual team to Washington. Many key leaders are former state officials, including the President and most of his immediate staff. There are also numerous former activists in environmental movements in top positions. We can expect sympathetic consideration of state views if state and local governments organize strong state and regional programs. If they do not, the "cooperative partnership" will be dominated by federal directives. There are many cynics in the Congress and the bureaucracy who doubt the success of federal-state cooperation in energy and environmental affairs, because the past record of state program management and regulation is not enviable.

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INTERGOVERNMENTAL ENERGY AND ENVIRONMENTAL CHALLENGES IN THE OHIO RIVER VALLEY: THE VIEW FROM THE STATES

Mavis Mann Reeves

The six Ohio River Valley states — Illinois, Indiana, Kentucky, Ohio, Pennsylvania, and West Virginia — share with the rest of the United States the challenge of producing, transporting, and conserving adequate energy supplies and ensuring that they are equitably distributed. At the same time, they must strive to protect the quality of their environment. Within their own boundaries, they face the necessity of stimulating economic growth to provide jobs for a growing labor force and of creating an income base adequate to produce tax revenues for the support of services demanded of state and local governments. In addition, as major coal-producing states, they are called upon to provide fuel for other parts of the nation. The Ohio River itself, with its heavy flow and deep channels, provides both water for generation of electricity and an avenue for fuel transportation. Consequently, the valley is a prime target for energy and industrial development, with accompanying economic benefits and environmental costs.

The valley states also have a stake in helping to maintain the federal bargain, ensuring for state and local governments a voice in future energy and environmental development matters as well as other policies of the nation. The challenge is to cooperate toward this end, for none of them can do it alone. If they do not "hang together" in helping to meet national goals as well as in protecting regional interests, they may find that they truly will all "hang separately."

ENVIRONMENTAL CONCERNS

At the same time the valley states work to improve their own economic levels and assist in fueling the nation, they face the problem of preventing the degradation of their environments. Because they are the "coalbins" of the nation, intensified efforts to produce more coal for fuel and to develop other energy will impact them particularly. Coal transportation and problems associated with the production of coal, especially from strip mining, will concentrate in this area. Lands ravaged by coal extraction can con-

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tribute to soil erosion, flooding, and stream pollution as well as mar scenic beauty. Existing rail facilities for the movement of coal will have to be upgraded and in some instances new roadbeds provided. The attractiveness of parts of the region as sites for steam power production and for nuclear energy centers[1] could result in immediate broad-range as well as long-range impacts on the area. The Ohio River with its abundant water is a magnet for steam-generated electric utility plants. Water drawn from it for power production and discharged back into the river can create ecological problems for a wide area.

The states must avoid exploitation by those demanding energy production both inside and outside the region. In Kentucky Governor Julian Carroll's words, they must not become the "ashpits" of the nation.[2] The states will have to handle intelligently the problems associated with the siting of power plants, the transportation and production of coal, the conversion of many non-coal-burning facilities to coal fueling, and the new industrial development in the area which adequate energy supplies might promote. They must recognize that "air pollution, water degradation, and land despoilation represent a portion of the true costs Americans pay for cheap energy."[3]

PROBLEMS OF POWER PLANT SITING

Siting for energy development poses immediate problems. In the first place, only a limited number of sites meet the qualifications for large developments, and competition will develop among those seeking to construct local power plants, coal conversion facilities, industrial parks, and expanded residential suburbs. Identifying these locations and planning to meet the problems associated with their development is an intergovernmental task because the difficulties generated cannot be confined within one state's borders. Secondly, geography, to some extent, hems in the valley so that it constitutes a single airshed for development on either side. Plant siting or facility conversion to coal on one side or the other could take up all the allowable air pollution capacity in the valley, thus preventing new plants or exceeding allowable pollution.

Following are some questions which must be considered in power plant siting:

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[1] Planned developments of more than four power plants along with some fuel cycle facilities as opposed to incremental clustering of plants. Panel of the National Academy of Public Administration, *The Institutional Aspects of the Energy Centers Concept* (March 1977).

[2] Statement of Governor Julian Carroll, September 23, 1976.

[3] Gerald Garvey, "Environmentalism Versus Energy Development: The Constitutional Background to Energy Administration," *Public Administration Review* 35 (July/August 1975):329.

— Should sites be set aside or reserved for large-scale energy development or continue to be available for other purposes? Private industry traditionally has determined site selection and design. To the extent that governments move into these activities they will meet resistance from many quarters.

— Should new siting be on a first-come first-served basis, or should long-range planning to meet projected needs occur?

— What happens when sites are located on one side of the river and workers live on the other?

— How are the air pollution problems of coal conversion to be met, with thirty-three coal-fired plants now lining the Ohio and others under construction?[4]

— How are threats to water resources by plant discharges to be met?

Socioeconomic Impacts

Not all environmental problems associated with plant siting relate to air and water pollution, ecological damage, and land devastation. Energy and industrial development creates socioeconomic problems as well. These may be of major importance to the quality of life in a region, especially in instances of large-scale facilities.

A study of the impact of nuclear energy centers highlights the socioeconomic problems that arise in any large-scale site development.[5] Primary impacts result from the number of construction workers and permanent maintenance employees that can be expected and the timing of their appearance. Eventually, other problems relating to rapid population growth develop, affecting small communities more than large ones. They will impact all cities and towns within commuting distance of the site.

A major problem is that of relocation of citizens residing in the area selected. This involves considerations of adequate compensation, assistance to control inflation of nearby land values, counseling services, and other matters. In some instances business establishments or entire communities might have to be moved. Workers might be separated from their occupations, and families, divided. Consequently, care should be used in site selection to minimize the disruptions. Abandoned military bases might be considered as relocation sites.

Additional problems are associated with land use and values. Land prices probably will increase, creating housing shortages and endangering land-intensive industries such as farming or lumbering. Rights-of-way for transmission lines will be required, and early consideration must be given to the development of multiple uses for these corridors.

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[4] Priit J. Vesilind, "The Ohio: River with a Job to Do," *National Geographic* (February 1977):252-53.

[5] National Academy of Public Administration.

The economic impact of increased business, higher wage rates, lower unemployment, and improvement of the tax base will not be an unmixed blessing. These benefits may be accompanied by higher costs of living, "price rationing" of scarce products for a while, and other difficulties. New workers moving into the surrounding area will impact the housing supply, and heavy exploitation of existing housing is likely to result until the supply increases. States and local communities will probably be called upon to provide additional police and fire protection, education, health and social services, water and sewer facilities, and recreation opportunities before sufficient taxes can be collected to pay for them.

This mismatch between needed revenues and their realization will be accompanied by problems of revenue distribution. Since the impact of the facility will probably affect other jurisdictions in addition to the one in which it is located, the problem of sufficient financial resources to deal with their problems must be solved. Consideration of these needs is especially important when relating federal or state grants-in-aid to the area surrounding the new facility.

INTERGOVERNMENTAL PROBLEMS

When one thinks of Ohio River Valley governments, one is apt to focus on the six states which make up the region. And, in truth, they are major decision makers in regard to its future. Nevertheless, the thousands of local units which could participate in decisions regarding energy production and transportation and which have important functions in finding solutions to the socioeconomic and environmental problems arising from increased production and development should not be ignored. Add to these the Appalachian Regional Commission (ARC), encompassing parts of four of the six states, the Ohio River Basin Commission (ORBC), designed to coordinate planning for water development in the region, and the Ohio River Valley Water Sanitation Commission (ORSANCO), with important functions in controlling stream pollution, and the complications increase. Decision making on complex problems is difficult enough when one person or a small group is engaged in it. When it involves the coordination and cooperation of multiple jurisdictions, it may take on nightmare proportions.

The most important intergovernmental relations for the region will be those among the states themselves, with the federal government, and with such agencies as the Ohio River Valley Water Sanitation Commission. This is not to overlook the importance of local abilities and interests. Local governments make the bulk of the growth management decisions and bear a substantial portion of the costs involved in environmental pollution. Unless they are experienced and skilled in handling the problems which accompany development, they will need outside technical assistance. States must recognize the local governments' concerns and ensure them a voice in decisions made on the state level. Nevertheless, in interstate activities, their interests will be represented by their state governments, with which they have considerable influence for the most part.

Interstate Problems

A number of interstate problems confront the concerned governments in the region. In addition to the fact that environmental and socioeconomic problems do not necessarily conform to state boundaries, in the past the states have failed to appreciate and take into account the impact of plant siting and other energy production actions on other states. One factor in this lack of consideration is the competition for industry and development. States are reluctant to impose conditions on industry which might drive it to other states. Another is the result of an insufficient communications network among them. Consequently, planning and development activities go on in one state that conflict with undertakings in a neighbor state. The difficulties of establishing an adequate communications network are not insurmountable. Maintaining it is much more difficult as personnel change and newcomers have to be oriented to its need. Table 1 sets out a list of factors which deter and facilitate intergovernmental communication.

TABLE 1. FACTORS DETERRING AND ENCOURAGING INTERGOVERNMENTAL COMMUNICATION

Deterrents	Facilitators
Restrictive state laws	Grants-in-aid
Lack of prior communication	Regional planning requirements
Absence of prior planning	Determination of environmental impact area for projects
Uncertain political costs	
Belief of citizens of each jurisdiction that they share all the costs of the activity	Already established regional intergovernmental organizations
	Strong political leadership
Trend toward "balkanization"	Official recognition of interdependence
Timid political leadership	

A lack of overall planning poses another problem for the region. ORBC does circulate proposed water and related resource development plans for the subregions of the valley and solicits comments. But the Comprehensive Joint Plan for which ORBC is responsible involves only coordinating and recommending to the federal Water Resources Council subregional plans rather than undertaking anything more than the broadest overall framework planning through its own staff.[6] Under the Water Resources Council interpretation, that is the extent of its planning function.

Despite the existence of multiple regional organizations, there is no *generalist* regional agency in the area with statewide responsibility for dealing with the entire range of governmental concerns. Whether or not such an agency is desirable from the point of view of the states, the absence of one means that problems are approached on a functional basis with consequent "tunnel vision." As a result, those concerned with abating water pollution focus on that problem and are likely to have only peripheral interest in energy development, transportation, and other activities. In fact, even if they considered those matters of primary concern, they would not have the legal authority to deal with them. The closest to a generalist organization in the valley is ARC, although not all the states in the region are included in its purview.

No authoritative regional agency exists either, except for ORSANCO, and it is limited functionally. This means that for decisions involving other activities which might be made on a regional basis there is no agency with power to enforce them. Reliance on voluntary cooperation often works, but it usually fails on the knottiest problems where the outcomes are the most vital.

Progress in Interstate Cooperation

The states in the region have a history of some cooperation, reflected in the establishment and maintenance of the Ohio River Valley Water Sanitation Commission. The activities of ORSANCO, along with those of ORBC and ARC, have opened up and helped maintain some lines of communication. ORBC's ninety-day review process for proposed subregional plans provides a regionwide input into water planning. Several Ohio River Valley states participate in the ARC's cooperative energy efforts. Governor Carroll of Kentucky, chairman of the Committee on Natural Resources and Environmental Protection of the National Governors' Conference, has taken the initiative in trying to develop intergovernmental communication and proposed the cooperative development of a regional power plan for the period to the year 2000, although little has come of it.[7] This conference is part of another effort to improve understanding and stimulate intergovernmental cooperation among the valley states.

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[6] Advisory Commission on Intergovernmental Relations, *Multistate Regionalism* (Washington, D.C., 1973), p. 121. Letter dated June 16, 1977, to Guy R. Martin, Assistant Secretary of Interior, from Fred E. Morr, Chairman, Ohio River Basin Commission, *Kentucky/Licking River Basins Comprehensive Coordinated Joint Plan* (Cincinnati, 1977), Appendix.

[7] Letter from Governor Julian Carroll to the governors of Ohio, Illinois, Indiana, and West Virginia, September 21, 1976.

Options for Improving Interstate Cooperation

The states have several options for more effective cooperation in regard to energy and environmental concerns. For example, they can:

1. Improve the effectiveness of communications and coordination among existing institutions in the region.
2. Strengthen existing organizations, such as ORBC, which coordinate planning in one functional area.
3. Establish an "early warning system" for energy and resource development projects similar to ORBC's ninety-day review process or that used by the area-wide councils of governments under the Department of Housing and Urban Development's "701" planning process.
4. Establish a continuing regional organization for general planning with emphasis on environmental and energy concerns.
5. Extend the ARC's jurisdiction to all the states in the region.
6. Establish a regional interstate compact authority with regulatory, planning, and energy facility siting responsibilities.
7. Establish a regional authority for energy production and development with characteristics similar to the Tennessee Valley Authority (TVA).
8. Accept federal authority for energy planning and development in the region.

Election of Option 1, to improve communication, could involve as little as an effort on the part of all concerned to exchange information and keep others in the region knowledgeable about future actions, or it could extend to the establishment of a clearinghouse for information on energy- and environment-related affairs. The former could be established by informal agreement while the latter would require a more structured arrangement. Consensus on financing, organization, and functions would be necessary. This might be accomplished through executive agreement, uniform state legislation, or additions to the functions of ORBC or some similar agency. It might be possible to establish a clearinghouse in conjunction with ORBC, though not intrinsically a part of it, through state agreement and financing. This would avoid the necessity of federal legislation.

Implementation of Option 2, to strengthen existing organizations, such as ORBC, would require federal legislation. Any efforts along this line should be directed first at achieving agreement among the valley states as to what they would like to include in any legislative proposal. Interstate conferences among governors or their representatives could be useful mechanisms.

The "early warning system" proposed in Option 3 involves notifying all state and local governments in the region of any applications for licensing, large-scale energy developments, and the like, and asking for comments within a specified period of time. It could stimulate intergovernmental consultation on a project to lessen adverse impacts or at least serve as a warning of them. It would require some permanent organization to administer the program. Conceivably this function could be allotted to an existing agency or become the function of a "valley council."

Option 4 envisions establishment of an Ohio River Valley council on a continuing basis. It could include representatives of all major state, local, and regional bodies in the area or be established primarily as an interstate body. This agency would be authorized to make comprehensive overall plans for the region, including those on energy and environmental matters, and, if established, should administer the project review program. An interstate compact or federal legislation would be required.

Extending the Appalachian Regional Commission's functions is discussed in the Dillon paper. ARC's federal role permits it — by virtue of interagency agreements, interagency task forces, or rule making — to participate in the design of the national plan in order to promote the interest of the region and of member states.[8] This avenue is not open to individual states. ARC can fund limited demonstrations of enterprise development of energy resources. It has its own energy impact program and can provide funds and technical assistance. As already noted, political considerations arise since two of the valley states are not represented in ARC. Nevertheless, such a proposal might have more political viability than other major plans proposed because four states are members, and ARC has a record of success.

Option 6, to establish a regional interstate compact authority with regulatory powers and planning and siting responsibilities, would be more difficult to obtain, and it would involve federal approval also. The federal government might, in fact, insist on becoming a party to the compact. Difficult as agreement on it would be, it might be more palatable to the states than federal preemption of energy decisions and administration.

Option 7, for the establishment of a regional authority similar to TVA for energy production and development, is guaranteed to produce adverse reaction from states (not to mention private industries) that fear the loss of control of internal affairs. Such an authority would require federal legislation and undoubtedly would reopen a national debate on the desirability of such authorities.

Option 8, the acceptance of federal authority for planning and development in the region, may not be a state option except as states can use their political influence to prevent it. The federal government has the authority under its commerce and war powers to preempt the siting, licensing, construction, and operation of power-generating facilities. Its use of this power, especially in regard to nuclear energy facilities, could attract considerable support. A panel of the National Academy of Public Administration recently suggested that the most effective approach for avoiding federal-state conflicts in siting, licensing, and regulation of nuclear facilities and for permitting timely decision making would be for the federal government to preempt authority for such activities in all areas relating to health and safety. It would then delegate back to the states broad regulatory authority to be exercised on a regional basis through interstate compacts.

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[8] "Comparative Analysis of the President's Energy Plan," Appalachian Regional Commission, Energy, Environment, and Natural Resources Division, staff report to the Energy Committee (mimeographed) (July 18, 1977).

These options, which are not necessarily exclusive, range from mild cooperation to the transfer of substantial political power. Their political acceptance is likely to run in the order of the options given above. Governments may, of course, choose to continue on their separate paths, relying on the wisdom of private interests to achieve acceptable goals.

Whatever kind of regional arrangements are made, if any, attention must be given to resolving disputes among regions and regional organizations. It is impossible to apportion the country regionally without interregional problems remaining.

STATE-FEDERAL PROBLEMS

State-federal views are often in conflict, and this pertains to energy and environmental concerns as well as to other areas. The differences are not in goals, because governments at all levels want adequate energy resources and a healthful environment. It is in the everyday efforts to devise and implement programs where disagreement occurs.

The states want the federal government to adopt a coherent national energy policy and would like to have a voice in its development. They find a lack of state perspective in present programs. State priorities and needs have not always been considered.

In addition, objectives in federal programs are often unclear and conflict with objectives in other programs. Sometimes requirements for state compliance are inappropriate, goals set for states are unachievable, invalid assumptions are made about administrative costs, and excessive specificity exists in program designs. Furthermore, uncertainties about the levels of federal support prevent states from carrying out their responsibilities under federal legislation. Several programs require the development of additional planning and staffing capacity, and states cannot make commitments to provide this without some assurance that funds will be available over a period of years. Moreover, delays in issuing guidelines complicate state efforts to respond to national goals. The states also point to insufficient technical assistance. Many need additional technical help supported by sufficient resources to provide timely outreach for all those states needing aid. For example, some state officials suggest that federal regional energy offices could be used as technical assistance centers.

One of the major difficulties facing states in past efforts to cooperate in federal energy programs was the fragmented structure of the national energy agencies. The creation in October 1977 of the U.S. Department of Energy should help to solve some of the problems. Nevertheless, interagency cooperation on the federal level will still be required, for example, between the departments of Commerce, Energy, and Housing and Urban Development.

States also complain of federal practices in environmental programs, and such complaints are directed at similar problems. They charge that federal officials often underestimate the tasks involved in implementing federal programs. In the Water Pollution Control Act Amendments of 1972, for example, alleged unrealistic deadlines have been set, insufficient funds are authorized, and delays exist in allocating funds to the states.[9] In addition, plans are diffuse and uncoordinated. The Environmental Protection Agency has delayed in implementing Section 208, the area-wide water planning provision, and funds for wastewater treatment were granted without prescribed valley- and area-wide regional plans.

There seems to be a general failure at the federal level to appreciate the traditional patterns and institutions through which state and local governments operate. These vary considerably, and federal expectations that each state respond to provisions of federal programs cannot always be met promptly. In most states local discretion exists concerning many facets of energy use and environmental protection. Consequently, the political difficulties involved in mandating local actions are often insurmountable.

State Views on National Energy Program

In regard to energy the states usually want the federal government, taking full account of their perspective, to:

1. Develop and implement a comprehensive, nationwide conservation program, bearing equally on all consuming sectors, as the central focus of the nation's short-range energy management strategy;
2. Simplify the procedures in order to expedite decisions affecting the construction of additional generating facilities;
3. Clearly define and establish . . . procedures for assuring the most effective and timely development of our fossil fuel and nuclear resources while ensuring appropriate consideration of environmental and socioeconomic impacts;

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[9] Virginia General Assembly, Joint Legislative Audit and Review Commission, *Program Evaluation Water Resource Management in Virginia* (September 1976), p. 89.

4. **Designate as an urgent priority the research and development of new energy systems.**[10]

States are also concerned that the President's energy plan will preempt state regulatory authority in energy production. They are apprehensive that the plan might not provide sufficient opportunity for state participation in planning and rule making under the program. They are anxious to present their perspectives early in the formative stages. Under one proposal, rule-making authority would be established for: (1) requirements for residential conservation programs, (2) home loans for residential energy conservation, (3) energy conservation for public buildings, (4) revision of electricity rate schedules, (5) bulk power supply, and (6) additional coal substitution. Sufficient means for establishing effective federal, state, regional, and local working relations on these need to be designed.

States involved in the production of coal are troubled especially by environmental affairs. They are disturbed that federal proposals give inadequate consideration to the impact on communities affected by coal production expansion. Coal-producing states, along with other states, are concerned with the probable higher costs to the environment and health under mandatory coal conversion requirements.

State-Federal Cooperation

The states and the federal government recently have cooperated on energy matters in many ways. Much of this cooperation has come through the associations that represent the states such as the National Governors' Association. For example, the association (formerly the National Governors' Conference) appointed small task forces to work with federal agencies to develop rules and regulations to implement the Energy Policy and Conservation Act.[11] The governors also worked with the Department of Housing and Urban Development on its weatherization program. The association and the Federal Energy Administration (now absorbed in the Department of Energy) agreed on procedures for handling substantive issues raised by either group. The organization's staff aided in the enactment of both the Energy Policy and Conservation Act and the Energy Conservation and Production Act.[12] In addition, state energy offices and other state agencies have worked with federal agencies.

In July 1977 the nation's governors met with President Carter, several cabinet members, and top energy officials on the future role of the states in national energy policy. Talks focused on conservation, financing, emergency preparedness, coal utilization, impact assistance, and the state role in off-shore leasing. They also dealt with current problems which federal practices in energy facility siting create for the states. The major result is that at least three groups of governors will work with Secretary Schlesinger on (1) the provision of incentives for conservation in order to reward states for sacrifices, (2) a plan for emergency preparedness, and (3) the mechanism and structure of the new Department of Energy. They also agreed to hold another conference soon on energy production.

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[10] National Governors' Conference, *Policy Positions, 1976-77, Winter Meeting Supplement*, p. 10.

[11] P.L. 94-163.

[12] P.L. 94-385. National Governors' Conference, *Governors' Energy Project: Planning Phase Report* (1974).

CONSTRAINTS ON STATE INTERGOVERNMENTAL COOPERATION

Internal factors limit intergovernmental cooperation between states. Like other jurisdictions, they must be responsive to public opinion. Since less than half the public apparently believes an energy crisis exists, time and money spent on intergovernmental solutions will impress many people as a waste.

Officials also must try to meet public demands. Ohio River Valley state officials will feel the pressures for increased economic development at the same time they face growing demands for services stimulated by rising energy production. These will allow scant attention and limited resources for external problems. Only strong leadership to impress upon the public that regional concerns are state and personal concerns will permit sufficient intergovernmental cooperation for dealing with the problems. Otherwise, internal voices calling for external cooperation are likely to be drowned out by other demands.

In addition, the organizations within the states for dealing with energy problems are "jerry built" and in need of reorganization. Established hurriedly to meet the crisis created by the 1973-74 oil embargo, many do not include all energy functions. Such fragmentation impedes intergovernmental action. Furthermore, states have not developed fully their individual capacities to contribute to energy policy making, implementation, and administration, despite a record in energy felt by many to be superior to that of the federal government. Failure by the states to get their own houses in order and participate effectively could hasten national preemption of authority in energy matters. At the very least, it will impede intergovernmental cooperation, for there is no single agency with the proper coordinating focus.

Ultimately, perhaps, intergovernmental cooperation is constrained by the reward system of American politics especially as it affects states working together. Few officials garner votes, plaudits, political support, or even much recognition by considering the plight of neighbors, conferring with officials of other states, or devoting time and energy to regional organizations. When cooperating with the federal government, financial or policy rewards may result. But cooperation with another state is likely to be politically viable only when the costs are negligible, or the costs of not cooperating are too high.[13] Now is the time for the Ohio River Valley states to undertake a cost analysis of individual action. Then they will know the price of continued individual action as opposed to meeting the challenge of intergovernmental cooperation.

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[13] For a discussion of intergovernmental cooperation among all levels of government, see Parris N. Glendening and Mavis Mann Reeves, *Pragmatic Federalism* (Pacific Palisades, Cal.: Palisades Publishers, 1977).

REGIONALISM IN THE OHIO RIVER VALLEY: THE RIVER BASIN PLANNING PERSPECTIVE

C. A. Hays

Natural resources issues differ from region to region. Approaches to mining and reclamation that work well in Pennsylvania may be inadequate in Wyoming. Flood damage abatement measures appropriate for Iowa or coastal Virginia may not be feasible at all in the mountains of Appalachia. Forestry practices acceptable in the Georgia pinelands do not serve well in the Vermont hardwood forests. Water supply needs and the conservation measures necessary to meet these needs may be much different in Phoenix from those in Cincinnati. People place different demands on natural resources, have different perspectives on the priorities for resource use, and face a wide range of very different resources and resource management problems. These are differences which state governments independently recognize and respond to in a constructive manner; articulating regional perspectives at the federal level, however, cannot be accomplished without some regional organization created for that express purpose. It is impractical to assume that the federal government, in formulating responsible, broadly constructed natural resource policies, can react meaningfully to fifty independent voices.

There are those who do not view the federal role as one of responding but rather as one of directing. They propose to establish a network of regulation and fiscal control that would reduce the differences to a common base so that one set of centrally promulgated and enforced rules can apply to all. Others, believing more strongly in the "grass roots" application of government, do not agree with this federal role. They believe that different regions have different problems, that the same problems have different priorities, and that national policy should be responsive to assist all regions, whatever their problems may be. Further, they believe that national priorities are required because funds are limited, but that these priorities should be developed in a way that addresses the important regional problems as the regions see them.

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NEED FOR REGIONAL ORGANIZATION

If the federal role is to be responsive rather than directive, the problem becomes one of manageability. How can broad national natural resource policies be logically devised when those who must formulate those policies are confronted with as many different recommendations as there are local problems? Obviously, a broadened regional perspective is required — one which can assimilate divergent local and state views into recommendations for actions which are more nearly national in scope and require federal attention. A regional institution is a logical mechanism for this purpose.

Regional institutions have been functioning for years in varying capacities with varying degrees of success. They have had many names and have come in all shapes and sizes, being called upon to do a myriad of tasks ranging from conservation of farmlands to grappling with the problems of our nation's energy crisis. Given the American tradition of creating regional institutions to deal with regional problems, questions regarding their need become moot. On the other hand, as social and political conditions rapidly change, the questions which need answering include, "What problems truly require a regional perspective and what kinds of regional institutions are appropriate in these cases?" and "What changes, if any, in existing regional institutions are required to enable them to better fulfill the role envisioned above?"

There is increasing evidence that a large number of the American people does not want and will not tolerate additional levels of governmental control. These citizens are reacting against bigger and more government and clearly want to maintain and protect the prerogatives of state and local government and to arrest, and perhaps even reduce, the control exerted on their lives by an ever-expanding federal government. Given this climate, it is not difficult to understand why talk of regional government meets a cool reception. Regional government is seen as only another drain on and dilution of state and local authority since, despite all the talk to the contrary, none of the three branches of the federal establishment has shown any inclination to reduce its regulatory or taxing powers.

On the other hand, there is wide, though not universal, agreement that the activities of the different components at all levels of government need to be coordinated to avoid duplication of effort and to identify and resolve conflicts among the proposals developed by these components in response to their varied constituencies. It is this function that regional entities, if properly designed, are uniquely capable of fulfilling with respect to natural resource issues — better intergovernmental coordination without imposition of another level of government.

On a national scale there is little doubt in the minds of many that regional organizations are essential if the multitude of natural resources issues which exists across this vast nation is to be addressed in a manner satisfactory to most of our citizens. There is growing recognition that a great deal of difference exists between federal policies and national policies as well as between federal goals, objectives, and priorities and national goals, objectives, and priorities. Many states feel that one of the protections they have against having their regional needs subordinated under a strong federal government is to make their voice heard in unison with other states, where they have stronger political leverage as a regional organization. In many cases natural resource problems can then be grouped into more manageable and regional categories than they would be if each state acted alone.

If you agree with the conclusions of every study commission, from the Hoover Commission report through the more recent National Water Commission report, that there is a multitude of agencies involved in resource planning for development, conservation, and preservation and that this requires, as a minimum, better coordination, then it is easy to accept the need for a regional organization. If an action-oriented organization with regulatory and enforcement powers is favored, and if reorganization to concentrate the necessary power at some existing or new level of government is preferred, then a regional organization might still be the solution. However, in this case, when you want to concentrate power or designate new powers at the regional level, you must tinker with the current assignment of authorities to the state and federal governments, which are now coequals in many ways. Numerous proposals have been made over the years to solve resource problems which appear to be feasible but, on closer examination, are possible only if the federal and state authorities are changed or if individuals through representative government are no longer allowed free choices.

DESIRABLE CHARACTERISTICS OF A REGIONAL ORGANIZATION

A viable regional body addressing natural resources issues should have the following characteristics:

— It should encompass a large enough area, delineated by natural boundaries, to be useful in identifying, studying, and solving natural resource problems.

— The natural boundaries should be easily defined.

— It should not threaten existing political institutions; authority for implementation should rest with the separate authorities of the existing governments.

—It should offer a forum for the active discussion of natural resource problems by high policy-level officials.
—It should provide for meaningful public participation.
—Final decisions should be reserved to elected representatives, who are responsible to the voters.

Although staff requirements of a regional organization should not be considered a major criterion, no discussion would be complete without taking a look at them. Since most staffs are limited at the regional level, they should be generalists, not specialists in one area or another, and should not be in competition with the organization's membership, which has large numbers of technical experts.

The staff all too often becomes identified as the regional organization so they must be careful that they provide assistance to the individual organization members and that they do not become a separate competing entity. The mission of the staff is to promote and help the ongoing efforts of individual members that have been determined desirable from some overall viewpoint. Because the interests of individual members are sometimes conflicting, they require that those items which are acceptable to all be quickly identified and that duplicative studies, projects, and programs be identified early enough to prevent wasted effort. The staff must not promote a particular course of action after the regional organization has decided that a different course of action is more appropriate. They should inform members of potential actions for consideration and provide each member with the other members' evaluations for a potential item and display it so that all members have an equal level of understanding. The principal members of the regional organization then decide on the action which will be recommended to the final decision makers (governors and legislatures of the states and the President and Congress).

It has long been recognized that the use of purely political boundaries in addressing and solving natural resources problems is not wholly satisfactory. Although the solutions to problems must be funded and implemented by political entities, the physical aspects of measuring the problems and planning for their solutions are dictated by natural considerations such as topography, geology, and hydrology rather than by the political boundaries established by man.

Thus, the planning for all but the smallest and most limited natural resource problems has necessarily been regional in nature, and there have been a number of efforts to create regional bodies constituted along geographic or topographic boundaries rather than political boundaries. Even some of the regional entities such as the Appalachian Regional Commission (ARC) have boundaries that more or less follow well-defined physical features. In fact, I think a strong case might be made that the problems within the ARC area are rooted in the physiography and geology of the area as much or more than any other single factor.

The most easily defined physical boundary, however, has been that which defines water drainages. For centuries, people have thought of their region — when they thought regionally at all — in terms of valleys, basins, and watersheds, all hydrologic units. Within a given hydrologic region, natural resource problems are intertwined into a complex network that sometimes seems to defy understanding. In almost all cases, though, the same people and groups and the same resources are involved in all issues — only the focus changes. This is true whether the problem be energy development, fish and wildlife enhancement, expanded commerce and agriculture, public health, or recreation. All require consideration of the same water and land resources, but with different emphases in each particular case. It was natural, then, when Congress addressed the need for coordination in the planning and development of the nation's water and related resources, that it selected the river basin unit as the fundamental regional boundary. These units had already been used for many years as the basis for regional organizations such as interagency committees, conservancy districts, industrial associations, water supply districts, and major trade and commerce associations.

Why do people use regional organizations? Certainly one reason is that already mentioned, i.e., that natural resource problems must be addressed, planned for, and their solutions selected on a regional basis, although implementation of specific actions must, of course, continue to be accomplished by political units. However, people see other advantages in regional organizations. Possibly the major advantage is the fact that a regional viewpoint can often represent the attitudes and characteristics of the region's citizens relative to a specific natural resource matter better than political units, which often encompass several separate and sometimes competing sets of natural resource characteristics, concerns, and uses.

One of the old problems that still plagues the regional organization occurs when there is a desire for the regional body to implement solutions to problems. The individual political units which are encompassed wholly or in part by the regional body must then be willing to give up some of their political prerogatives. This requires the sovereign states to cede to the regional body certain decision-making, taxing, and regulatory powers. The problems involved in such a shift in political authority have sometimes been worked out for intrastate regions, but become more difficult at the interstate level. As a result, those interstate regional natural resource bodies which have been based on a requirement that the states cede part of their sovereign authorities have found some difficulty in exercising the regulatory and taxing powers that are at least implied in the interstate compacts which created them. The states have usually reserved to themselves individually the right of deciding when the regional body will be allowed to exercise these authorities and have been unwilling to abide by decisions reached by majority vote.

Another problem occurs when federal participation is by a single federal member. This offers little hope for successful leadership in accomplishing the many functions which must be addressed because the federal member neither represents nor has authority to direct the many federal agencies that are assigned the responsibility and authority to act by law.

Any workable regional organization must devote a large part of its energies to achieving communication among the parties involved. It is only through continuing interchange of ideas and proposals that the trust necessary for any regional action can be built. Each participant must be willing to share its plans with others who may have plans of their own that are duplicative or conflicting. This free exchange of information is sometimes difficult to achieve considering the fact that the many institutions within a region are often competitors for either a limited resource or a given group of constituents. For any regional coordination to be meaningful, the state and federal members of the regional organization must have authority to act in their areas of responsibility. They should be people at the policy-making level who are responsive to decision makers who are, in turn, answerable directly to the voters or at least no more than one step removed from such accountability. National and regional technical and professional organizations are valuable in fostering communication and idea exchange among those professionals charged with the task of carrying out the directions of elected officials and providing the continuity so necessary to efficient government. However, neither the professionals nor such groups should be expected to answer the difficult political questions dealing with *what* should be done. Their advice will certainly be requested and valued, but in a free society resource allocation questions can only be decided through the elected representatives of the people. What is needed, then, is a forum for discussion and resolution of difficult resource questions by policy-level people, and the output of such a regional body should be recommendations to the top elected officials, i.e., the governors and state legislatures, the President and the Congress.

Inevitably there will be impasses, issues so volatile politically or difficult to resolve technically that no agreement can be reached. This should surprise no one, for sometimes the stakes are very, very high when irreplaceable natural resources are involved. The final recommendations of the regional group should consist of those implementation actions opposed by no one, those studies and investigations which all agree are necessary to make decisions on other potential projects and programs, those regional positions on natural resource issues which all agree to by consensus. Those major proposed actions and policies on which agreement cannot be reached outside of higher legislative or judicial channels should be discussed and, where appropriate, alternatives and trade offs should be presented for consideration.

Full involvement of the public is the final, but extremely important, criterion for a viable regional body. In establishing meaningful public participation within a regional context, it is essential to identify the "publics" which are more normally concerned with natural resource decisions. Within each government jurisdiction, there are usually several "publics" which seek to influence that government's actions. As an example, in the field of human rights, minority and ethnic associations, labor unions, attorneys, and various women's organizations are often encountered; and in the field of transportation, railroads, aircraft and automobile manufacturers, construction companies, engineers, and insurance companies are the principal "publics" that seek to influence government policies.

Natural resources are no exception; farmers, environmental groups, utilities, commerce and industry, and recreationists are among those "publics" that generally provide input or respond to government decisions in natural resource policy. The fostering of regional public involvement must start with these readily identified "publics." These interests should be categorized, with every attempt made to provide balance among the categories and public representation from all corners of the region.

These "public" representatives must then be incorporated into the working processes of the regional organization, including studies, committee meetings, organizational meetings, and any other matters which would normally be of interest to them. It is essential that these representatives have input to the decisions or recommendations promulgated within the regional forum, although they should not have an actual vote in matters of business before the organization. In a representative form of government, the final action must be reserved for elected officials or their representatives, with their deliberations, discussions, and actions conducted under the public's watchful eyes and with its full participation.

Governmental decision making and policy pronouncements, regardless of what field of emphasis, impact upon the *entire* body of governed. Hence, in seeking full public participation, the regional institution must make every endeavor to broaden its base of public involvement beyond those special and active interests readily categorized. So pervasive in influence and impact is the use of our natural resources that every individual is affected by governmental policy and management decisions, whether or not he knows it. Therefore, public participation programs must involve a conscious effort to increase overall public awareness of natural resources questions through the use of newsletters, media briefs, and other public relations techniques. The public's perception of the significance of natural resources management decisions can only be enlarged through constant and easily understood communications.

EXAMPLE: ONE RIVER BASIN PLANNING PERSPECTIVE

The river basin commission concept set forth in Title II of Public Law 89-80 may come closer to meeting the foregoing criteria than any regional entity in existence today. River basin commission participation does not require states to give up any of their sovereign powers. It recognizes that, while regional problems must be discussed and studies and solutions developed on a regional basis, implementation of any regional plan must be accomplished by the individual political units within that region exercising their individual and sovereign authorities. The river basin commissions operate by consensus, meaning that any individual member can prevent positive action on the part of the commission by a dissenting vote. This protects each member from being forced into an untenable position, counter to state law or policy, or against its legislative authority and direction, because of a majority vote. However, the state members are not inhibited from recommending changes to policies or laws when that seems to be the best solution, and the federal members can abstain in any vote on a matter where their participation is prohibited.

River basin commissions have appointees of governors of states as members of the commission. They are appointed to represent the governors and thus represent the states' position. Also, they can address more than technical considerations of items. The federal members' input, on the other hand, is restricted to technical matters reflecting agency policies (which ideally should be in consonance with overall federal policies) since they are not delegated the authority to speak for the administration on political matters except in terms of clearly defined federal policy. Nevertheless, the Title II river basin commission is the only natural-resource-oriented institution in America today where the states and federal representatives face each other in a forum as equals.

The commission process identifies conflicts early on so that they can be addressed expeditiously and facilitates the identification of areas which are not being addressed by any current program. Coordination and information exchange is promoted by river basin commissions to reduce the opportunity for wasteful duplication and conflict. Duplication may not be bad in itself if it is limited to the identification of alternative proposals for using a resource or solving a problem. In most cases this means that costly engineering design and project details are left until a later time rather than being included at the feasibility stage. Commissions are valuable because they restrict duplication of efforts to the identification of alternative ways to solve the same problems, but prevent duplication further on down the line at the project design stages.

The process is also capable of changing the regional recommendation if, as more detailed information becomes available during the development of the engineering design and the project environmental impact statement, the need for change becomes apparent. As new problems arise or the relative importance of the older identified functional needs changes, the plan must change accordingly. As information becomes available or as campaigns are mounted and carried to the people, attitudes change which also must be reflected in the recommended plans. Planning is continuous and must be kept up-to-date, or it is useless and provides little assistance to the decision makers who must respond to their constituencies.

The Citizens' Advisory Council (CAC) to the Ohio River Basin Commission (ORBC) has proven to be an effective means of involving the public in all ORBC activities. The CAC consists of more than one hundred persons from eleven states organized into interest groups representing agriculture, commerce and industry, environment, power, recreation, transportation, water supply and quality, and general interest. Representatives of the CAC are present at all commission meetings and work group sessions, and they take an active role in all studies, comprehensive coordinated joint plan development, and selection of priorities. The CAC has also served as a nucleus for expanded public participation throughout the region. In its comments presented at recent water policy hearings, the CAC reported: "We feel the river basin is the logical physical, social, and economic boundary to manage this nation's water resources. Our six years of involvement with the ORBC convince us that river basin commissions are a proper and viable entity to accept additional responsibilities that might result from new legislation on a national water policy."

OTHER NATURAL RESOURCE FIELDS

This statement by the CAC reflects the growing public tendency to stick with existing institutions, expanding their missions if need be, rather than continue to create new ones. There has been a tendency in recent years to appoint a new study commission, ad hoc committee, review board, fact-finding team, etc. every time a new problem raises its head or an old one defies solution. Such groups have proliferated at an amazing pace and, once formed, some have shown a remarkable persistence even after their findings have been reported to their creators and their usefulness is questionable at best. In the natural resource field, could not such one-time studies be entrusted to a single continuing regional institution already in existence? After all, almost any natural resource issue is composed of the same elements involving the water, land, and mineral resources of the region. Also, the issue will likely contain the same list of functional needs, i.e., energy, recreation, wildlife, transportation, flood control, water supply, and water quality. To be sure, the degree of importance assigned each of the many components present in complex natural resources issues will vary, as will the interest of any particular governmental or public group. But it is still the same groups, resources, and needs that are involved.

OTHER REGIONAL ORGANIZATIONS

There are several other existing organizations that could be considered to fill this role. Two, in particular, come to mind: the federal regional council (FRC) and the river basin compact commission. If the criteria outlined earlier are accepted, then the FRC fails on the basis that it is not constituted along natural boundaries, does not afford the states an equal voice, and, because of its many other human resource concerns, would have difficulty in establishing a public participation program primarily for natural resource issues. The compact commissions would have the traditional difficulties posed by their inherent threat to existing state prerogatives.

CONCLUSION

The Title II river-basin-commission-type institution, on the other hand, complies with all given criteria. The river basin commission can address the issue of energy and associated socioeconomic and environmental concerns. All interests are represented on the river basin commission. All interests have their minority rights protected. It can solve the basic problem — that of bringing together all the information on an issue and placing it in perspective. Decision makers are available; their primary need is better information and understanding, not someone else to make their decisions for them. I offer that the river basin commission is an ideal institution to coordinate and plan for energy and environment in the Ohio River Valley. It exists, it is inexpensive, and it works. The organization and mission may need some revisions to enable a broadened mission, but the principles underlying these commissions do provide an excellent opportunity to meet the natural resource challenges facing our nation in the coming decades.

CHALLENGES OF INTERGOVERNMENTAL COOPERATION IN WATERWAY MANAGEMENT IN THE OHIO RIVER VALLEY

E. R. Heiberg III

Today is the time to address the subject "Challenges of Intergovernmental Cooperation in Waterway Management in the Ohio River Valley" as it relates to the evolving national energy and environmental policies and objectives. Without improved interagency and intergovernmental coordination and cooperation procedures, the goals for energy independence with acceptable environmental impacts cannot be attained within the timeframe necessary for the valley's and perhaps the nation's well-being, if not their very existence.

The U.S. Corps of Engineers is intimately familiar with the long time it takes to implement water resource plans and projects. It takes an average of about twenty-four years, based on thirty-six projects completed in three recent years (fiscal years 1973 to 1975) to plan, design, and construct a typical civil works project. Although about ten years of that time is spent in budgeting funds, a factor toward the other fourteen years is the continuous public participation during those times. But a more imporant factor is the changing perceptions and desires of the public as expressed through new laws, regulations, etc. during the total elapsed time for the process. Of course, public participation continues and may even increase as we move into the operation, maintenance, and management stages after the project is completed. An example is the adjustment of lakeshore management policies on one of our many Corps lakes (we have seventy in the Ohio River Valley alone).

My point in discussing the time it takes to implement civil works projects is to highlight the problems in implementing energy-related facilities. It takes eight to ten years lead-time for a fossil-fuel plant and ten to twelve years or more for a nuclear plant.

When we contemplate an effort to double coal production in the next decade, the overwhelming problems that confront us are not only those of planning, designing, and constructing the power plants but also those involved with supporting facilities such as transportation and provisions of housing and services for coal miners and supporting industries. A dramatic example in the Ohio Valley is along the large network of navigable waterways — our system of sixty locks and dams. Barge traffic has been dramatically rising recently, paced by increasing coal movement. In much of this valley, rail and highway modes do not offer a practical alternative for barging the coal. Some of our traffic-impacted locks, even though fairly "young," are already operating at or near their maximum. I will discuss this in more detail later, but the point is that some of these challenges are with us now.

Although almost all of the Corps of Engineers' functions and activities are interrelated to energy and the environment, I will specifically address the following topics:

— the Corps of Engineers mission
— water and related land resource planning
— energy and waterway transportation
— regulatory functions (permit programs)
— water supply
— water quality
— flood control
— hydropower

I will not address other areas in detail, yet I recognize others high on the priority list. One of these which others will explore is that of air quality, which may deserve to be at the top of the list.

THE CORPS OF ENGINEERS MISSION

The Corps of Engineers has a long historic involvement in waterway management. As it relates to energy, this includes the construction and operation of commercial navigation systems; projects with hydroelectric generating facilities; construction and operation of multipurpose projects for flood control, water supply, and hydroelectric purposes, among others; and efforts to improve the water quality of the nation's rivers and lakes.

The future needs of the energy-consuming public will require a coordinated intergovernmental effort in the Ohio River Basin to meet these most pressing challenges:

— Provide a transportation system for the movement of substantially increased quantities of coal.
— Provide measures to reduce the effects of flooding. In conjunction with this flood effects mission, we must seek to increase water storage which may offset increased water consumption by off-stream cooling systems and look for ways to raise production of electrical energy by installing hydroelectric generating systems. (This may also include use of pumped storage power to postpone the total plant needs in the nation.)

— Protect and enhance the improving quality of water in the Ohio River and its tributaries.

WATER AND RELATED LAND RESOURCE PLANNING

Water and related land resource planning concepts are continually changing in response to new challenges. Most of our citizens have come to accept the facts that our natural resources are finite, that essentially all claims for use of part of those resources are legitimate, and that these resource uses must be systematically planned. The acceptance of those facts has made the planning for water and related land resources a very complex subject. "Fishbowl" planning, visible to all, and involvement of all interests have become essential. The modern "federalist" must champion resource values. That federalist must do this in addition to fulfilling the historic role of developer and manager of interstate resource activities and needs. And that federalist must continue to work in close concert with state and local interests or risk failing to achieve the values pursued.

We as a nation are in transition in the use of our water and related land resources, from early emphasis on exploitation and development to today's emphasis on conservation and management. We must continue to develop to meet today's and tomorrow's new challenges, but we must increase the efficiency with which we use existing resource developments. At the bottom line, we must protect and conserve the entire resource complex for future use.

Our current planning processes are designed to facilitate the contemporary decision-making process by bringing at least three mandated options into clear focus. These options are:

— the most probable future: no significant new development or modifications of management practices

— new development or major changes in management, oriented toward maximizing economic efficiency

— a course of action which is oriented toward achieving environmental quality objectives

Occasionally, plans which satisfy the three mandated options will be very similar. More often, resulting alternative plans are rather dissimilar. Also, many water resource utilization studies require the development of additional alternative plans. Plans which emphasize the output of water services such as high levels of urban flood protection are often warranted. Let me make one very important point here that many Corps critics, as well as supporters of new dam projects, do not understand. The Ohio River Valley is "mature" from the standpoint of development, and nearly all logical sites for dams and lakes are already built. The Corps is *not* dedicated to building dams unless they are needed. I don't know if there will be five more large off-river dams built in this valley, or three, or none. But the seventy built are just about "it." Yet we must take an honest look at each new challenge on its own merits and attempt to define the full public interest by today's standards. Shortly after coming into office, President Carter directed a review of all federal water projects, a review we supported completely. This review did identify a number of projects which, by today's standards, are not needed. That review has set the style and tone of the fresh look the Corps is prepared to give our approach to water resource development.

The development of an array of alternative plans during the early stages of a planning effort results in a more complex but much more satisfactory decision-making process. The costs, benefits, and impacts of a full range of alternatives are developed and publicly discussed. The trade offs required to achieve a recommended plan of action are identified. As a result, we end up with clearer understanding of the costs and consequences of our actions.

The Ohio River, with its floodplains, its supply of water, and its waterway transportation, recreation, and fish and wildlife opportunities, brings together many diverse commercial interests, all dependent in varying degrees on the river. This opportunity was dramatically demonstrated last winter when, for a number of days, record cold weather and resulting ice virtually halted river transport. This reminded us what the "old days" presented — undependable navigation, usually ceasing in the winter's cold and the summer's low flow. Today, that reminder of the value of virtual year-round assurance of barge transport should help underline the importance of that opportunity to the Ohio River Valley and to the nation's industry. The resource demands of the diverse interests are sometimes competitive. More often than not, there is some degree of conflict. Intensive and fully integrated planning is required to assure that the overall land and water resource complex is used most effectively. Such planning necessarily involves not only the resource users but the various levels of government required to develop and manage its use. Priority use concepts will become necessary. Clearly, some activities have a lesser need for riverside locations than others. To be successful, users of high-bulk commodities must use low-cost transportation and must locate near the transportation system. Where development of these types of commerce is desired, priority of use should be considered.

Electric power plants using barged coal as a fuel, steel product plants, mineral processors, chemical plants, and grain terminals are among such potential priority users. Frequently, the availability of large volumes of process water is an added requirement and incentive for such users. A previous incentive which is no longer available was the use of the river to discharge moderate to large volumes of polluted water. The more recent legal requirement for "removing the pollution" from the discharge waters may "move" some users from the floodplain.

Since downstream water supply uses must be protected, industrial and all other effluents must be monitored along with overall water quality. The threat of flooding, including its full range of potential social impacts, must be evaluated for each type of floodplain activity and occupancy. As resource use relationships and social and environmental impacts become more complex, specific floodplain uses may have to be restrained. An example might be the location of a major chemical plant in an urban floodplain which, while perfectly safe under normal conditions, may become less safe to that urban environment during severe flood periods.

Let me pose a current, apparently simple, but worrisome question: "In the Corps' systematic planning for maintaining and/or modernizing the navigation facilities, what volume of traffic should be designed for X years from now?" An answer to that question requires input from many sources.

The U.S. Department of Transportation is responsible for overall national transportation planning, while the Corps manages the navigation part. Any shift in the relationship between barge and rail volumes, or their respective "shares" of the total traffic volume, affects both agencies. In addition, state and regional bodies which must maintain the viability of their local economies and protect social and environmental values must enter into the above decision-making process. The chain of interrelationships is frequently complex. A major Ohio River navigation commodity is coal; the location of coal-burning electric power plants along the river affects air quality; that location decision must respect air quality standards; those standards may require the burning of low-sulfur coal; such coal may have to be transported to the power plants from more distant sources or a different direction, thus impacting navigation requirements; and so on. My intention in citing these problems is not to dwell on their complexity. Rather it is to point out, emphatically, the need for much more intensive coordination and of much more comprehensive plans for resource development, conservation, and use.

ENERGY AND WATERWAY TRANSPORTATION

At present the Ohio River Basin supplies more than half of the nation's total coal production. If that coal production is to approximately double in the next decade, a sizable contribution must come from the basin. Much of the increased coal production would be moved on the waterways. The Ohio River navigation system moved 100 million tons of coal in 1975, and the tonnage was significantly higher in 1976. The Ohio River main stem system includes thirteen new navigation dams and locks completed since the early 1960s and eight older structures completed in the 1920s and 1930s. All but six of these structures have large locks (1,200 by 110 feet) capable of handling large tows in a single lockage. Much of the coal production in the basin is in tributary areas, and the coal initially moves on tributaries en route to its destination. Three of the tributaries which move a significant amount of coal — the Monongahela, Kanawha, and Green rivers — currently are being considered for improvement.

The new Ohio River locks have the capability of handling a substantial increase in river traffic and can take the challenge associated with the doubling of coal production and resultant movement by waterway. However, six older projects and tributary systems will be overloaded if some enlargement is not accomplished. Indeed, some are today at their effective limit. The Corps hopes to complete navigation improvements on the main stem and on some important tributaries over the next decade. Incidentally, the current navigation depth through most of the system, nine feet, will adequately handle foreseeable traffic challenges. There is no current effort to study the authorized depth.

Waterway transportation offers definite advantages for the movement of energy-related commodities, particularly coal and petroleum. It provides low-cost bulk movement capabilities from mines to the destinations along the river (steam plants, steel mills, etc.). Waterways are a safe, energy-efficient mode of transport. As the nation's dependence on coal increases, the development of coal-fired generating facilities also will increase. These installations are normally located along the rivers because of the availability of water transportation for coal supplies and a sufficient source of cooling water.

Two tons of every three moving on the Ohio River are energy related (coal 52 percent and petroleum 14 percent — 1975 figures). Approximately 65 percent of that coal is utilized for the generation of electrical power. Most of the steam coal (for electrical generation) is produced within the Ohio River Basin. However, some western coal is being used by utility companies to meet air quality standards.

Coal which moves on the Ohio River is produced in several areas of the basin. Some of the principal producing areas are along the Monongahela River, the upper Ohio River, the Kanawha River, the Big Sandy River, the lower Ohio River, and the Green River. However, the coal is not always utilized in or near the area in which it is produced and often is shipped considerable distances. For example, coal produced in the upper Ohio-Monongahela River area supplies power plants in the Cincinnati area, and coal produced in the Big Sandy Basin supplies steel mills in the Pittsburgh area. In the next decade, the primary coal-producing areas are not expected to change very much. However, they will be expanded. And there may well be surprises as the nation examines alternative technologies — we must stay sensitive to such developments.

There is one exception. Many laymen have been distracted by the hope for major advances in solar energy. Whereas solar energy may become important over the next decade or two in heating dwellings or places of work, we are not close to using solar or other exotic means to produce significant amounts of electricity until — at the earliest — well into the twenty-first century. This has been clearly stated by the unprejudiced National Science Foundation. Mankind, and particularly this nation, will long be dependent on fossil fuels for our energy needs.

Since an increasing percentage of the coal will be used for electrical power generation, construction of power plants that will meet air quality standards and the transport of this coal to the power plants will be the major energy-related challenge in the Ohio River Basin. A number of new power plants are in various stages of planning along the Ohio River. There are some new plants in the upper Ohio River area upstream from the Gallipolis Locks. This structure has small locks with limited physical capacity, and it is today rapidly approaching maximum capacity. Future coal shipments through this project to power plants will become restricted near the end of the next decade unless additional lock capacity is provided. A number of new plants are being planned for the Cincinnati-Louisville reach of the river. Coal supplies for these steam-generating plants could originate in the lower Ohio–Green River area or the Big Sandy River area. The navigation system for this middle reach of the Ohio River should have sufficient capacity to handle projected traffic for the remainder of this century without significant restrictions. But we must continue to assess valley needs for the future.

Any increase in the production of coal in the Ohio River Basin will affect the environment. In addition to the obvious increase in the tonnage of coal (and added tows) moving on the river, additional river terminals and port facilities will be required. Most of those require federal permits and therefore federal-state decision making. More mines will be opened (both deep and strip), and more miners will be required to produce the coal; new coal conversion plants (both oil and gas) may be developed as technology and capital for investment permit; and the potential for air and water pollution will be increased.

REGULATORY FUNCTIONS (PERMIT PROGRAM)

The Army, acting through the Corps of Engineers, is responsible for administering various federal laws that regulate certain types of activities in specific waters in the United States. The authorities for these regulatory programs, as applicable to the Ohio River Basin, are based primarily on various sections of the Rivers and Harbors Act of 1899 and Section 404 of the Federal Water Pollution Control Act Amendments of 1972 (FWPCA).

Section 10 of the Rivers and Harbors Act of 1899 requires permits from the Corps for structures and work in navigable waters or in an area which would affect a stream's navigable capacity. Section 404 of the FWPCA regulates the discharge of dredged and fill materials in relation to ordinary high-water levels and adjacent wetlands, which has the practical effect of bringing the Corps into virtually all construction activities in or adjoining most rivers and streams in the valley. And all permitting today requires us to look at the full range of effects of the activity on the public interest.

The increased demand for electrical energy has necessitated cooperation and coordination between both federal and state agencies. This increase in demand has caused utilities throughout the Ohio River Basin to examine projected loads and capacities, resulting in a number of utilities currently expanding their generating capacity by enlarging existing generating stations and building new stations. The Corps becomes involved since the intake and discharge structures and barge facilities normally associated with generating stations require permits under our authority. These stations often require permits or approvals from additional federal and state agencies and also involve coordination with agencies with statutory review responsibilities.

The other federal agencies with permit and/or granting authority include the Environmental Protection Agency (EPA), the Rural Electrification Administration (REA), the Nuclear Regulatory Commission (NRC), the new Federal Energy Regulatory Commission (FERC), located in the recently created Department of Energy (DOE), and other units of DOE. EPA is involved because of responsibilities under Section 402 of FWPCA (the National Pollution Discharge Elimination System — NPDES) and Section 309 of the Clean Air Act. EPA has general responsibility for the review of all environmental impact statements. REA is a funding agency which guarantees loans to rural cooperatives. NRC is involved only with nuclear generating stations. FERC is involved with hydroelectric generating stations, and other DOE units are involved in a wide range of research, development, and demonstration activities. The Fish and Wildlife Service has review capacity under the Fish and Wildlife Coordination Act. The Coast Guard also possesses review capacity when structures affect navigation.

State agencies are also involved in those states that have assumed NPDES authority from EPA and those states that have authority regarding new source performance standards for air emissions. Each state agency charged with administration of fish and wildlife resources is also involved. And, for example, the state of Ohio has a power plant siting committee.

Obviously, with this myriad of agencies, someone needs to assume overall responsibility in coordination of effort. The "lead agency" concept allows one federal agency to assume overall project responsibility while other participating agencies can provide input on their area of expertise. In the case of fossil-fuel generating stations, the Corps or EPA is usually the lead agency. If a project is in a state that has assumed NPDES authority, the Corps is usually lead. If the state has not assumed NPDES authority, EPA is usually lead. REA is lead if it is guaranteeing funding for the majority of the project cost. The NRC is always lead agency for nuclear generating stations. In this manner, the total work load of the agencies is more efficiently spread since each agency is not required to do a complete project review for every project. The division of labor also allows a more timely and coordinated review of a proposed project. This lead agency concept is usually implemented through the environmental impact statement (EIS) process, which is generally required for energy-related facilities and activities.

The Corps recently compiled data on processing time for permit applications (all activities) which included EISs during the period January 1, 1972, through March 15, 1977. The average processing time (application receipt to permit decision) was 31.5 months, or nearly three years. Individual processing time ranged from 8 to 67 months. Clearly increased efforts in intergovernmental coordination and cooperation should contribute to shortening the permit-EIS process.

Some alteration of the Corps' Section 404 authority may be forthcoming. This continues to get a good deal of congressional attention. Current proposed amendments would allow the delegation of permit authority to states similar to the delegation of NPDES authority by EPA. Since this is only proposed, specifics obviously are not available. Such a change would encourage state and local governments to assume the primary responsibility for protecting lakes, rivers, streams, and wetlands outside the traditional navigable waters jurisdiction of the Corps of Engineers since 1899. I hope that we can find a way to handle Corps responsibilities with more state participation, since this can help us protect water resources in a way that recognizes regional needs better; it should also help us reduce the inefficiencies and long processing times of today's permitting.

WATER SUPPLY

Because of regulations limiting thermal discharges from electrical generating stations, most utilities now utilize off-stream cooling for new generating units. The most common types of off-stream cooling are natural and mechanical draft cooling towers. These devices effectively limit thermal effluent to a degree that thermal pollution from new units is negligible.

Removing heat from the circulating water system of a generating unit by use of cooling towers is accomplished by evaporation. This process consumes more water than once-through cooling by losing it to the atmosphere. All existing generating stations on the Ohio River together currently consume a maximum of approximately 280 cubic feet per second (cfs) for cooling purposes. With those stations currently under construction and proposed, water consumption may increase to a maximum of over 700 cfs. Also, an increased dependence on nuclear generating stations will accentuate this consumptive water use. Nuclear stations consume 50 to 80 percent more water than a comparably sized fossil fuel station since all waste heat must be released to cooling water (whereas some waste heat is lost with stack gases in a fossil fuel plant). This water consumption requires more water to be withdrawn from rivers or reservoirs. For an individual power plant this may not be significant, yet the cumulative effect of continued growth of utilities and industrial development will require significant volumes of water for consumption purposes.

WATER QUALITY

The protection and enhancement of water quality of the Ohio River and tributaries will continue to require the cooperative efforts of all levels of government. The actions of various federal, state, and local agencies have led to an overall improvement in Ohio River water quality, and this trend should continue into the future.

The Corps of Engineers has a significant involvement in water quality enhancement. Through a dredge sampling program, we now have a good idea of the quality of materials removed through our maintenance dredging program. Dredge material disposal sites are also coordinated with applicable state and federal agencies. The building and upgrading, over the past eight decades, of our navigation structures changed the character of the Ohio River. Providing relatively stable pools, most people conclude, has been a clear advantage to the valley. Prior to building of the structures, it was very common to see the Ohio dry up to the point where people could even wade across. The combination of reservoir storage and navigation dams has given us insurance against most of the terrible water quality and other problems which extreme low flows would bring today to our valley. A program has been implemented to operate the gates at the dams to increase the river's dissolved oxygen during periods of low flow. Dissolved oxygen is important from the standpoint of the assimilative capacity of the river for waste discharges and also for the maintenance of a viable biotic community.

Our cooperation includes coordination with EPA and state agencies in the NPDES program for new source discharges. Close coordination occurs particularly during preparation of environmental impact statements for new generating stations and expansion of existing stations. We also assist the Ohio River Valley Water Sanitation Commission in periodically conducting a fish-sampling program at selected locks.

The Corps has also been an active participant in local "mutual aid groups" which develop and institute control strategies for oil and other hazardous material spill control. Groups such as these include the Greater Cincinnati Hazardous Materials Control Group and the Louisville Mutual Aid Group. We also provide aid as requested by the Coast Guard, which has been designated "on-scene commander" for oil spills.

ENERGY AND FLOOD CONTROL

The Corps of Engineers' Institute for Water Resources (IWR), in cooperation with the Ohio River Division of the Corps, has just started a study to address a potential multiple-agency strategy to facilitate increased coal production from the Appalachian area. It is anticipated that increased production could break the perverse cycle of floodplain settlement and resulting flood disasters and enhance quality of life for Appalachian communities and their residents which ultimately would provide a sound basis for increasing individual productivity. A preliminary IWR draft paper outlines the problems and possible program strategies to provide housing and services to the miners, associated industries, and families residing in the major coal-producing counties of central and northern Appalachia.

Flooding is one of the serious environmental problems, directly affecting the quality of life of over 600,000 persons residing in fifty-six counties of Appalachia. These counties are major coal producers (each exceeds 1 million tons annually) and contributed 47 percent of the coal mined in the United States in 1975. Record floods have occurred in most of the area at least four times in the last twenty years. The April 1977 flood caused over $120 million in damages in coal-producing counties of Virginia, West Virginia, and Kentucky. The June 1972 "Agnes" storm caused over $85 million in damages in Pennsylvania coal counties, and the 1957 event caused over $34 million in damages to Kentucky coal counties. On a per capita basis, the loss per community resident has reached $2,800 for major floods. In the past three years federal disaster relief to the states of Kentucky, West Virginia, Pennsylvania, and Virginia for flooding in these and neighboring counties has totaled $183 million. This does not include the Johnstown flood of July 1977.

Other environmental problems contribute to flood damages. Silt from the sediment, resulting from coal washing, produces increased damage to furniture, appliances, and motors which cannot be repaired, leading to total losses. Runoff is speeded up by topographic and ground cover alterations from mining, road building, timber harvesting, and agricultural misuse of steep terrain. Hydraulic capacity of stream channels is adversely affected by sedimentation and encroachment. Acid mine discharge and organic pollution contribute to rob many Appalachian streams of desirable quality for water supply and fish and wildlife habitats.

West Virginia Governor Rockefeller has recently set forth the case for deliberately introducing a quality-of-life objective into the work of public agencies dealing with miners and the communities in which they live. The compelling harshness of continued severe flooding makes a powerful argument for programs which begin to create the kind of communities which will support a vigorous and healthy mining economy.

Projections of mining portend as much as a doubling of output by 1985. Many industrial and independent sources question whether this rate of increase can be attained. Accepting considerable slippage still permits a projection of a robust and economically healthy coal market for all coal-producing areas of the nation. Central Appalachia is a primary contributor to reaching national energy goals. Published projections of mine expansions indicate an additional 153.4 million tons capacity in the counties covered in this analysis by 1980. Additional employment is projected to be 28,180 miners, a 21 percent increase.

Three potential major program strategies are suggested. First, we should pursue a substantial commitment to combine flood control and flood hazard reduction measures to produce a situation where the majority of the citizens and miners are in a position of relatively low risk of loss of life, wealth, and well-being from floods. Second, we must do even better in developing the river systems in a way which provides a reasonably equitable level of environmental quality for the residents and visitors of this great energy-producing area. Third, all must recognize that there is no single and uniform prescription worth serious consideration at all places in the area. I see again and again the single solution put forward — "Build us a dam!" — is often the demand of the flood-impacted community. The problems are long standing, yet several federal programs and agencies seem appropriate to harness cooperatively in the task of finding sensible solutions.

For the strategies listed above, it must be recognized that present methodologies for justification must be expanded to put more emphasis on regional and social well-being benefits rather than a strict national economic development benefit-to-cost ratio. The above strategies suggest several non-traditional opportunities.

One such opportunity involves new homesites. New housing for some 28,000 miners and their families will be required if the announcements of expansion of capacity are confirmed. Much of this housing will likely be supplied by house trailers and modular homes. Work force location is likely to be more dispersed than new employment estimates indicate due to the frequent pattern of long commuting trips in Appalachia. Yet this influx of new jobs allows an exceptional opportunity to shift traditional settlement patterns which have been in the valley floor to a much lower flood hazard location at higher elevations and to provide public services equally subject to minimum possible flood hazard. Since many communities have low-value houses and marginal business properties, these areas will not only need new development but also will require redevelopment of existing properties. Planning, engineering, and some subsidization of public service and environmental quality features could be accomplished with cooperation by the state, the Corps of Engineers, the Department of Housing and Urban Development, and the Department of Agriculture.

One particular opportunity requires a more comprehensive water management project and service approach. The existing commercial service centers in certain Appalachian coal counties are characteristically subject to severe flood hazards. Those communities have substantial needs for good quality and adequate water supply and are subject to a shortage of outdoor recreation facilities. They are confronted with difficult solid waste, water, and air pollution control problems. The problems seldom can be solved by individual community action alone because they call for cooperative regional planning design and implementation solutions. Corps, EPA, and Department of Interior programs and capability in water planning and management should be combined with state, county, and local community capability to bring these communities up to a reasonably high degree of relief from continued flooding and to provide safe and adequate water supplies, clean air, and good utilization of outdoor recreation resources. Acid mine waste management, especially from long-deserted mines, continues to require public action since private ownership and responsibility cannot be resolved.

Such approaches demand aggressive implementation of flood hazard management capability, with strong federal support, to assure that the Appalachian coal communities can provide a competent and sufficient level of public safety and health and community services under the known flooding environment. Federal support for a high degree of flood proofing to public buildings and facilities to allow these services to be maintained during and after flood events would be expected. Provision of high-water or low-flood hazard access and egress to these services would be a necessary complement. Development of evacuation and disaster recovery plans, with sufficient precautionary and simulation exercises to maintain effectiveness, should also be encouraged by substantial federal financial and logistic support. The National Flood Insurance Program, which assists residential and commercial property owners to reduce financial exposure to flood losses and encourages building regulation and land-use controls to reduce these losses, should be expanded to give widespread coverage in the area. A high level of subsidy would be expected to existing property covered by the National Flood Insurance Program.

HYDROPOWER

Because of the shortage of and the efforts to conserve gas and petroleum in the generation of power, the development of hydroelectric power will become an important consideration in future energy programs. As of January 1976, hydroelectric power accounted for about 13 percent of the nation's total energy production. This percentage can be expected to increase as gas and petroleum resources become depleted. Also, hydropower production is by far the cleanest mode from an environmental standpoint. Hydropower development in the Ohio River Basin includes both high-head development at reservoirs to include pump storage and low-head development at navigation dams (run of river). Hydropower will become increasingly important as a replacement for petroleum-fueled plants to provide power during periods of peak demand. Hydropower is normally utilized as part of an overall power system which has its major power supply from steam generating plants.

At present hydroelectric power is generated at six navigation dams on the Ohio River and its tributaries (excluding the Tennessee River). These include two plants on the Ohio River main stem, one on the Kentucky River, and three on the Kanawha River. These low-head plants have a total energy potential of about 230 megawatts electric (MWe). All of the navigation projects on the Ohio River have been constructed to accommodate the installation of a hydropower plant. Two hydropower plants have been licensed by the FERC for construction — the Racine and the Greenup locks and dams. Construction is scheduled to begin at both of these projects within the next year or two. These projects have an energy potential of about 110 MWe. In addition, the FERC has issued preliminary permits to investigate the feasibility of hydropower development at several other navigation projects on the Ohio River. The total undeveloped potential at Ohio River navigation dams — excluding Racine and Greenup — is estimated to be about 700 to 800 MWe.

Feasibility studies are underway for hydropower projects in the Gauley and Kanawha river basins in West Virginia. This type of power development essentially would involve conventional and pumped-storage projects at multiple-purpose reservoirs. The studies have included the screening of a large number of possible project sites down to several locations which have significant potential for power development. Other major purposes such as flood control, fish and wildlife management, and recreation are being considered. The studies have involved an extensive public involvement program. Several public meetings were held, and fact sheets were mailed to more than 24,000 families.

One of the toughest parts of the hydropower question that I have seen is in finding the correct way to define the public interest. For example, when we ask for public reaction to adding a turbine to an existing lake project or building a new pumped-storage project (which involves a new, though small, dam), we hear only the objections. As with a new highway, many will recognize the need for the structure, but few want it in their backyards. The "public" who comes to us (and would write a governor or congressman) will say, "Don't put it in my state . . . we don't get or need the power, don't want our existing lake (or stream) changed!" Yet we do not hear from the consumer who will profit from lower electricity rates, or better air quality, or added insurance against power blackouts. How do we plug into *that* public?

Last April 20, the President submitted a comprehensive energy plan to the Congress. Included in this plan was the following statement: "New or additional hydroelectric generating capacity at existing dams could be installed at less than the cost of equivalent new coal or nuclear capacity. Many of these sites are small, but could generate 3 to 5 megawatts and are located near major demand centers currently dependent on imported fuel oil. Installation of additional generating capacity at existing sites could conceivably add as much as 14,000 megawatts to the Nation's generating potential." The fact sheet which accompanied this plan noted: "The President has directed the Corps of Engineers to report within three months on the potential for additional hydropower installations at existing dams throughout the country — especially at small sites."

The Corps of Engineers' Institute for Water Resources designed a study to determine not only the physical potential of existing dams, but also the constraints to the development of this potential. The results of this study (with comparable Ohio River Basin numbers in parentheses) are as follows:

- — By installing more efficient turbines and more powerful generators at existing hydropower dams, 5,100 (132) MWe of capacity could be obtained.
- — By installing additional turbines and generators to existing hydropower dams, 15,900 (19) MWe of capacity could be obtained.
- — A maximum of 33,600 (3,287) MWe could be obtained by constructing powerhouses at all existing nonhydropower dams in the United States.
- — There are engineering, economic, financial, environmental, social, and institutional constraints to constructing powerhouses at existing nonhydropower dams. Much of the information needed to determine the

precise nature and severity of these constraints is not available, but none is considered to be insurmountable.

— Additional research, with emphasis on the construction of demonstration small-scale hydropower facilities at a number of existing nonhydropower dams, is recommended as a means to define better the constraints which might hinder and the incentives which might accelerate the development of hydropower at such sites.

Although the total potential for hydropower development is small compared to projected U.S. electric generation needs, hydropower, in conjunction with other evolving energy-production systems such as solar, wind, tidal, biomass conversion, geothermal, and other small-scale techniques, could provide a significant and environmentally acceptable amount of relief to our current dependence on foreign fossil fuels. The development of all of the hydropower potential at existing hydropower and nonhydropower dams could generate almost 160 billion kilowatt hours of electricity and save 727,000 barrels of oil per day. This is seven-and-one-half times the savings associated with the President's goal of solar heating 2.5 million homes by 1985.

CONCLUSION

In this paper I have touched on several major challenges that face the federal decision maker in our valley: the Corps of Engineers' mission; the changing planning rationale; the extreme importance of waterway transportation coupled with the need to modernize the few near-future bottlenecks in the navigation system; the complexities of the permit program; the increasing water consumption by power plants; our interest in water quality; the challenges in providing a decent environment for the miners in the steep-terrain, flood-prone, narrow valleys of central Appalachia; and the need and potential for hydropower expansion. I have not, however, touched on all the challenges we could address. For example, the Corps alone, and just in the Ohio River Valley during this past year, had over 75 million visitor days from citizens who came to enjoy the recreation opportunities provided by federal lands. This is a major plus in our valley which the Corps, together with the states, provides to the general public. I have also not addressed what may be one of the most serious environmental challenges already impacting on valley life — the air quality issue. I will leave that to fellow conferees to lay out. However, I recognize this aspect of the environmental challenge as one of the most troublesome facing us.

There are many opportunities for the Corps to improve the processes by which we develop or operate for the public through our talents and our responsibilities. The processes are complex; the institutions involved are many, and their interests are often divergent; the trade-off decisions are difficult; the time it takes to change things often seems an eternity. Yet I must conclude that as partners in an increased spirit of cooperation and coordination we can meet the challenge.

INTERGOVERNMENTAL COOPERATION IN "UP-VALLEY" POLLUTION TRANSPORT MANAGEMENT

J. Philip Bromberg and Thomas G. Fox

In 1974 the 122 coal-fired electrical generating plants in the Ohio River Valley and the adjacent midwestern region contributed 78 percent of the total sulfur dioxide (SO_2) emissions from the total of 195 such plants in the northeastern United States. It appears that these SO_2 and particulate emissions contribute to "up-valley" ambient sulfate and other particulate concentrations, thus presenting potential environmental and health hazards extending many hundreds of miles downwind from the emission sources.

Clearly, intergovernmental cooperation in the management of up-valley pollution transport is a concern, especially for the six states being considered in this Assembly, wherein a large portion of the SO_2 emissions originates.

Decision makers in government and in the private sector need to be guided by knowledge and understanding of different choices. There exist key gaps in our understanding of emissions, environmental quality, and health impacts. Gaps in our understanding of the impacts expected in the use of various emissions control technologies exist as well.

Any approach to intergovernmental cooperation in up-valley pollution transport management must be based on an all-out effort to obtain the data on which understanding of the problem and the impacts of various solutions depend.

SULFUR OXIDE EMISSIONS AND AMBIENT CONCENTRATIONS

Nature has endowed the Ohio River Valley with abundant water, natural resources, and river transportation. As a result, the Ohio River Valley contains the world's most extensive concentration of heavy industry, much of it related to coal consumption. The general geographical outlines of the Ohio River Valley with reference to the northeastern United States are indicated in Figure 1.

Since the electrical power generating industry constitutes the largest single user of coal and the largest single source of sulfur oxides, much of our discussion will devolve about this particular industry. The locations of the 195 large coal-fired generating plants in the northeastern United States

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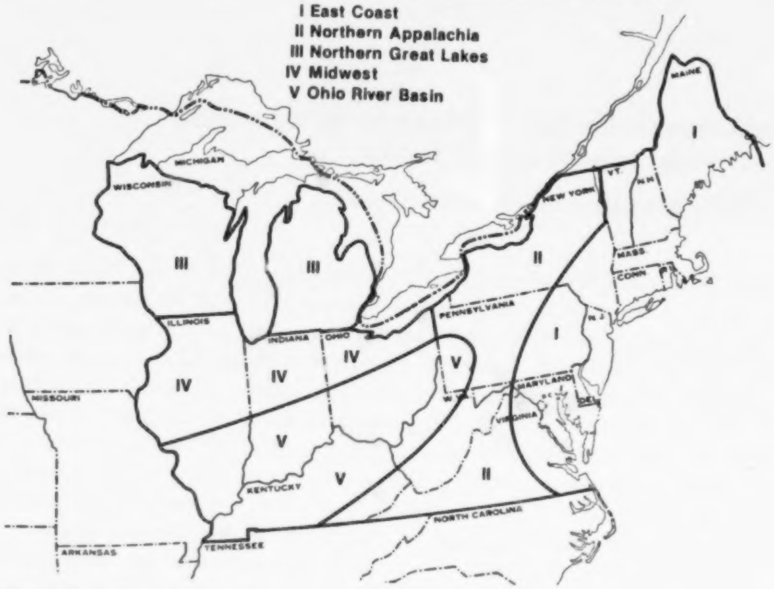
FIGURE 1. GEOGRAPHICAL SUBREGIONS OF THE NORTHEASTERN U.S. QUADRANT


I East Coast
II Northern Appalachia
III Northern Great Lakes
IV Midwest
V Ohio River Basin
MAINE
VT
N.H.
NEW YORK
MASS
CONN
R.I.
PENNSYLVANIA
N.J.
MARYLAND
DEL.
VIRGINIA
W.VA.
NORTH CAROLINA
MICHIGAN
WISCONSIN
ILLINOIS
INDIANA
OHIO
KENTUCKY
TENNESSEE
MISSOURI
ARKANSAS
I
II
III
IV
V

Adapted from Illinois Geological Survey, *Minerals Note 57* (June 1974).

are noted in Figure 2; the capacities, coal consumption, and SO_2 emissions of these plants by regions are noted in Table 1 for the year 1974.[1]

The data in Table 1 indicate that in 1974 the 72 coal-fired plants in the Ohio River Valley burned 46 percent of the coal used by these 195 plants and produced 50 percent of the SO_2 emissions. If the 52 midwestern plants are added to the 72 Ohio River Valley plants, then these two regions combined contributed 78 percent of the total SO_2 emissions while representing 64 percent of the total number of plants in the northeastern United States.

These high emission rates are reflected in high sulfur oxide ambient concentrations, as shown in Figures 3 and 4.[2] The highest concentrations of SO_2 — more than 30 milograms per cubic meter ($\mu g/m^3$) — and SO_4

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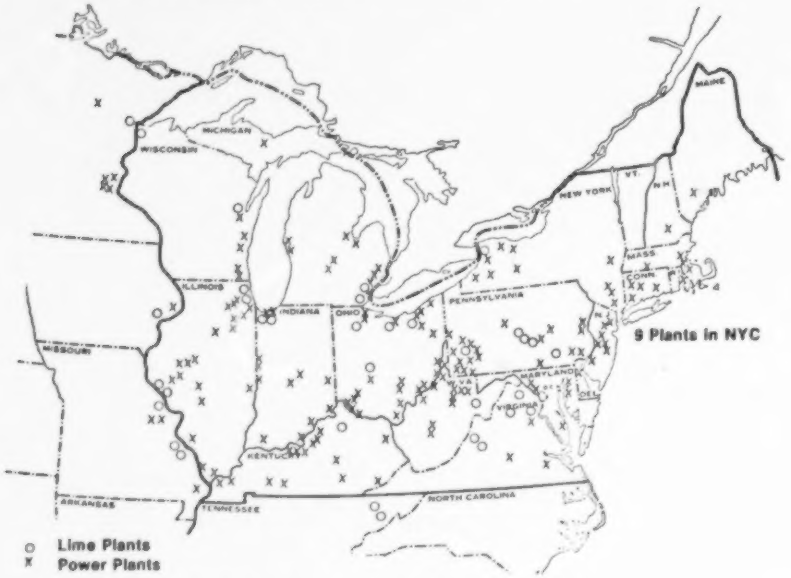
[1] *Sulfur Oxide Control Technology*, Commerce Technical Advisory Board, U.S. Department of Commerce (September 10, 1975).

[2] *Air Quality and Stationary Source Emissions Control*, Commission on Natural Resources, National Academy of Sciences; National Academy of Engineering; and National Research Council (Washington, D.C.: U.S. Government Printing Office, 1975).

FIGURE 2. COAL-FIRED ELECTRICITY GENERATING PLANTS AND LIME PLANTS IN THE NORTHEASTERN U.S. QUADRANT


WISCONSIN
MICHIGAN
ILLINOIS
INDIANA
OHIO
PENNSYLVANIA
NEW YORK
VT.
N.H.
MAINE
MASS.
CONN.
MISSOURI
KENTUCKY
TENNESSEE
ARKANSAS
NORTH CAROLINA
VIRGINIA
MARYLAND
DEL.
9 Plants in NYC
o Lime Plants
x Power Plants

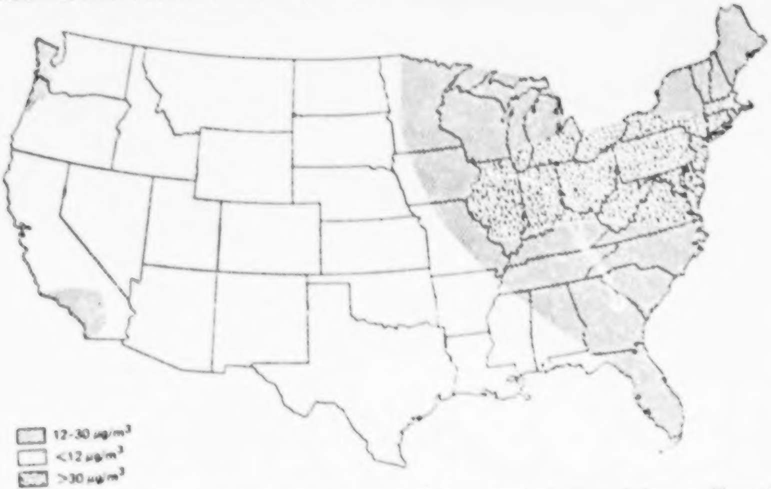
Adapted from Illinois Geological Survey, *Minerals Note 57* (June 1974).

TABLE 1. BASIC DATA ON 195 COAL-BURNING GENERATING PLANTS IN THE NORTHEASTERN UNITED STATES

Region	Number of Plants	Rated Capacity (MWe)	Coal Burned in 1974 (Thousand Tons)	SO_2 Produced in 1974 (Thousand Tons)	Average Percentage Sulfur in Coal
I. East Coast	26	15,270	18,960	680	1.8
II. Northern Appalachia	26	14,120	33,500	1,310	2.0
III. Northern Great Lakes	19	9,050	22,460	1,240	2.8
IV. Midwest	52	33,610	74,960	4,150	3.0
V. Ohio River Basin	72	55,910	129,380	7,290	3.0
	195	125,960	279,260	14,670	2.6

Source: *Sulfur Oxide Control Technology*, Commerce Technical Advisory Board, U.S. Department of Commerce (September 10, 1975).

FIGURE 3. URBAN SO_4 CONCENTRATIONS FOR 1970-71



Source: *Air Quality and Sationary Source Emissions Control*, Commission on Natural Resources, National Academy of Sciences; National Academy of Engineering; and National Research Council (Washington, D.C.: U.S. Government Printing Office, 1975), p. 243.

(more than 13 µg/m³) lie in an area running eastward from the midwest and Ohio River Valley regions enveloping Ohio, Pennsylvania, and the eastern megalopolis from Boston to Norfolk. The highest sulfur oxide concentrations are to be found in urban areas. In New York and Pittsburgh the annual average SO_2 concentrations in 1971 were 104 and 54 µg/m³; the SO_4 concentration in both cities was 20 µg/m³.[8] These quoted values are annual averages; often they reach substantially higher levels.

About a third of the nation's population lives in this high sulfur oxide concentration region. Clearly, we need to be concerned about the health hazards to populations in the northeastern United States which may stem from up-valley transport of SO_2 and its derivatives from emissions from Ohio River Valley coal-burning electrical generating plants.

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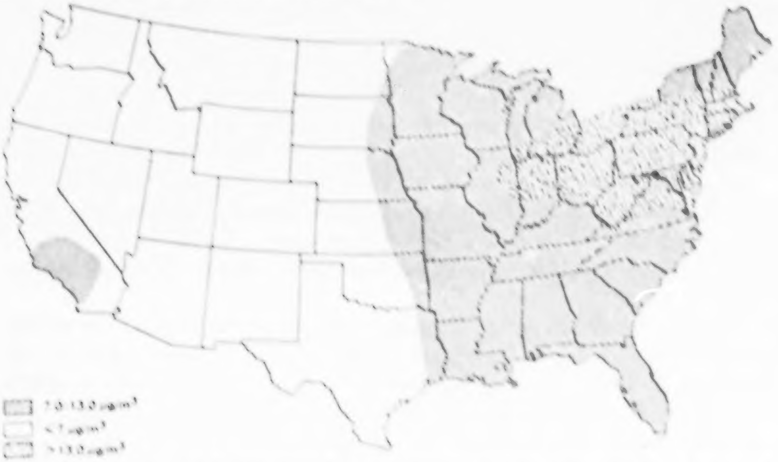
[8] A. P. Altshuller, "Regional Transport and Transformation of Sulfur Dioxide to Sulfates in the U.S.," *Journal of the Air Pollution Control Association* 26 (1976): 318-24. It should be noted that these data are not current but are presented because they were readily available. Doubtless the quantity of coal burned and the SO_2 emissions have fluctuated with economic development in the past few years. Also, SO_2 emissions abatement schedules have been adopted for a number of existing plants and may have been completed in some cases. A weakness of the present situation is the difficulty of obtaining an up-to-date "box score" on the changing sulfur oxide emissions pattern and ambient levels.

FIGURE 4. URBAN SO_4 CONCENTRATIONS FOR 1974



Source: *Air Quality and Stationary Source Emissions Control*, Commission on Natural Resources, National Academy of Sciences; National Academy of Engineering; and National Research Council (Washington, D.C.: U.S. Government Printing Office, 1975), p. 247.

Regulatory Practice

When the Clean Air Act of 1970 was enacted, it was thought that SO_2 was the major hazard in emissions from coal-fired plants. Regulations and enforcement procedures were established for SO_2 in a two-level system. On the national level, new source performance standards (NSPS) were set for all new coal-fired generators, which limited their emissions to 1.2 pounds of SO_2 per million (10^6) Btu. This is the maximum allowable emission rate for new sources; the individual states can, and often have, imposed more stringent regulations for urban areas.

In addition, each state was required to establish its own state implementation plan (SIP) for the control of SO_2 and other pollutants. These regulations apply to existing plants and also to new sources if the state regulation is more stringent than the federal. Pennsylvania, for example, has a three-tiered SIP for large stationary sources. Plants located in rural areas are limited to about 4 pounds of SO_2 per 10^6 Btu; plants in semirural areas are limited to about 2 pounds of SO_2 per 10^6 Btu; and finally, plants in urban areas (Pittsburgh and Philadelphia) are limited to 0.6 pounds of SO_2 per 10^6 Btu.

The emission limitations under the SIPs are not uniform. On a state level, maximum allowable emissions in rural areas of the various states range up to 6 pounds of SO_2 per 10^6 Btu. In populated urban areas state-established levels range from about 0.3 to 1 pound of SO_2 per 10^6 Btu. Clearly there is no agreement among states as to what constitutes the best emission limitations needed to effectuate satisfactory ambient standards.

Recent Environmental Protection Agency (EPA) studies of health effects seem to indicate that, contrary to original belief, SO_2 alone is not the real culprit. It is the sulfate particulates (SO_4) formed from the SO_2 which are now thought to constitute the major health hazard. Unfortunately, EPA does not at this time possess sufficient data relating health hazards to SO_4 ambient concentration in order to establish ambient air quality standards for these SO_4 levels.[4]

Present EPA policy is to encourage the use of "best available control technology" to achieve "lowest achievable emission rates." This is reflected in the Clean Air Act Amendments of 1977, recently signed by President Carter. Current regulatory policy is based on the belief that SO_4 particulates are detrimental to health and that high SO_4 levels are correlated with high SO_2 levels. Current policy is committed to continuous controls. National policy has not heretofore encouraged early use of proven technologies such as coal washing which, while they might not achieve emission standards, could achieve a dramatic decrease in total emissions at a relatively low cost in a relatively short time. It discourages the use of dynamic emission controls which are aimed at lowering local SO_2 emissions drastically by fuel switching, load switching, or curtailment when meteorological forecasts indicate the greatest threat of high SO_4 concentrations developing.

This policy will not necessarily achieve the desired ambient standards and is not designed to achieve environmental standards at the lowest cost. The policy requires a major early commitment to first-generation flue-gas scrubbing technology with attendant high resource use, energy inefficiencies, and waste disposal problems.

The present regulations, if inflexibly enforced, could sometimes produce results which appear counterproductive. For example, consider a hypothetical electrical utility plant in rural Pennsylvania consisting of two 500 megawatts electric (MWe) units. The plant is limited to SO_2 emissions of 4 pounds of SO_2 per 10^6 Btu. Suppose an additional 500 MWe unit is added. The new unit is subject to the NSPS standards of 1.2 pounds of SO_2 per 10^6 Btu, which can be met by the installation of a scrubber system. Taken as a whole, the 1,500 MWe plant can legally emit 3.07 pounds of

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[4] *Position Paper on Regulation of Atmospheric Sulfates*, U.S. Environmental Protection Agency, EPA-450/2-75-007 (September 1975).

SO_2 per 10^6 Btu on the average. On the other hand, instead of a scrubber for the new plant, a "beneficiation" plant could be constructed to supply coal to all three units at a much lower capital and operating cost. The clean coal would emit some 2.5 pounds of SO_2 per 10^6 Btu at each plant, well under the 4 pounds of SO_2 per 10^6 Btu limit required at the two existing plants but above the 1.2 pounds of SO_2 per 10^6 Btu required for the new plant. The plant taken as a whole would emit 29 percent less SO_2 at a fraction of the cost, resulting in cleaner air, but this approach is impermissible.

Rigid enforcement of legislation which may appear to emphasize the punitive aspects of the law at the expense of cleaner air — at an earlier date and at a lower cost — may discourage best efforts in the private sector to search for and employ viable technological approaches to achieve the "doable" SO_2 emission reductions at the earliest date possible.

Unknowns and Uncertainties

In 1970 it was believed that a lowered SO_2 concentration would produce a concomitant lowering of the SO_4 particulate concentration. The experimental results have been somewhat anomalous. During the past several years, while the urban concentrations of SO_2 have been going steadily downward (the result of lower sulfur fuels), the ambient SO_4 particulate concentration has remained relatively constant, and in some cases it has even increased. For the east coast region the average urban SO_2 concentration decreased by 55 percent from 147 to 66 $\mu g/m^3$ between the years 1963 and 1971. The average urban SO_4 level, however, decreased by only 15 percent, from 18.4 to 15.7 $\mu g/m^3$ over the same period; the SO_4/SO_2 ratio has increased from 0.13 to 0.24. In New York City the SO_2 concentration decreased from 408 to 104 $\mu g/m^3$ while the SO_4 level decreased by a relatively much smaller amount, from 31.1 to 20.8 $\mu g/m^3$. In Pittsburgh, while the SO_2 concentration has gone down from 89 to 54 $\mu g/m^3$, the SO_4 concentration has increased from 16.3 to 19.5 $\mu g/m^3$.[5]

In examining these figures it is important to bear in mind that to a certain extent we may be comparing apples to oranges. Analytical techniques and the quality of analyses may not have been uniform over the ten-year span. While the status of the analytical procedures for SO_2 may be considered to be satisfactory, this is not the case for the sulfate particulates. Further, the established techniques for sulfates determine only the soluble sulfate portions. There is little experimental basis for determining that their nature is constant over time. There is some evidence that "dirty" air enhances the conversion of SO_2 into SO_4; however, the impurities in the air which promote this oxidation have not yet been established.

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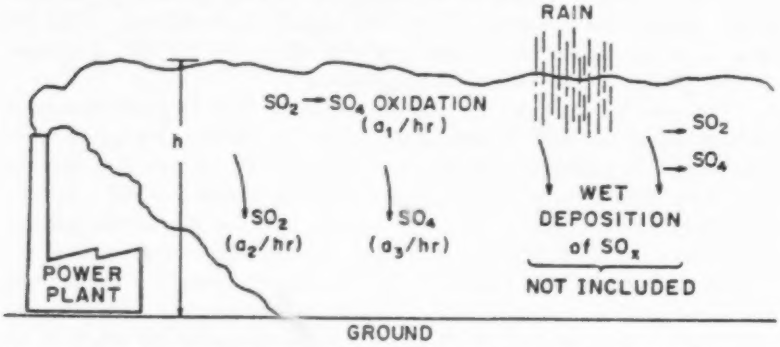
[5] See footnote 3.

The atmospheric chemistry and transport of sulfur oxides are complex. The variables include oxidation rates and transport rates, which are affected by pollutant levels and meteorological conditions. Neither of these is sufficiently understood at the present time. A simple model which illustrates the various factors is shown in Figure 5. Some calculated concentrations downwind from the source, a 500 MWe plant burning 3 percent sulfur coal under varying conditions, are shown in the curves of Figure 6. The model indicates that the SO_4 concentration is highest near the source and decreases rapidly with distance, falling only relatively slowly after downwind transport distance of about two hundred miles.

In principle, a monitoring effort and "bookkeeping" which sequentially follow SO_2 and SO_4 levels as a function of SO_2 emissions, time, meteorology, terrain factors, etc. should permit analyses relating SO_2 and SO_4 concentrations to these pertinent variables. As yet, the monitoring effort has been insufficient to relate SO_2/SO_4 levels to time and place, though a start in this direction is just getting underway by the Electric Power Research Institute (EPRI) in its sulfate regional experiment program. In addition, EPA and its contractor Teknekron, Inc., are currently undertaking a study of the long-range transport of SO_4/SO_2 as part of the U.S. EPA–Teknekron Integrated Technology Assessment of Electric Utility Energy Systems. And as already noted at this Assembly, EPA is funding researchers from eight universities to carry out the Ohio River Basin Energy Study.

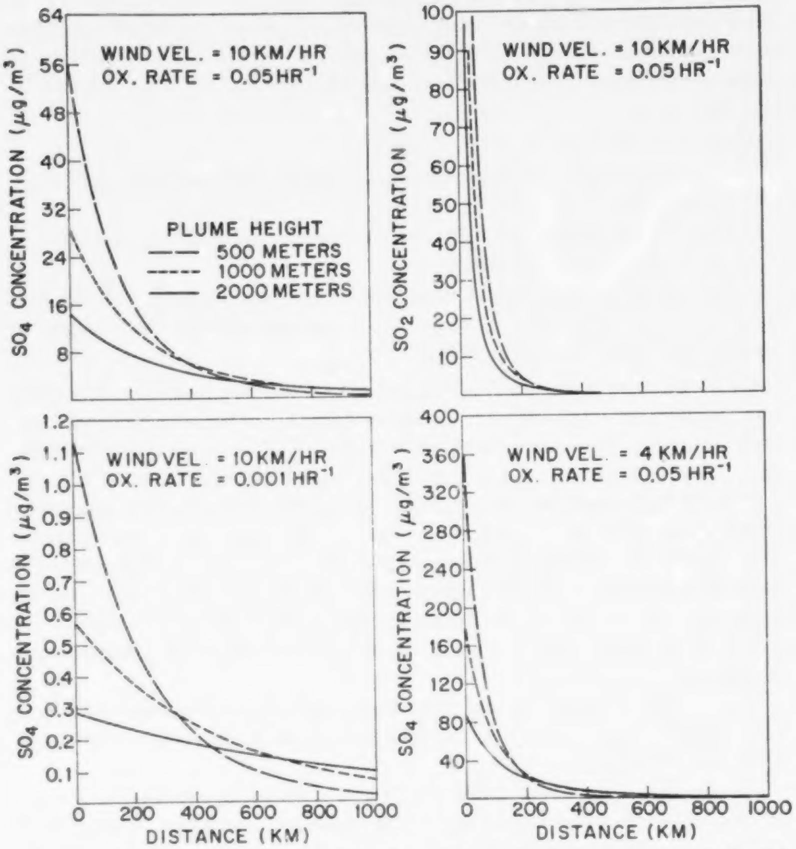
The ultimate rationale for our concerted effort toward controlling ambient levels of pollutants lies in their health effects. The effort expended in this

FIGURE 5. MODEL FOR TRANSPORT AND CONVERSION OF SULFUR OXIDES



Source: J. Philip Bromberg, "The Migration and Ultimate Fate of SO_2 Discharged into the Atmosphere" (paper delivered at the Fall Meeting of the Society of Mining Engineers of AIME, Denver, Colorado, September 1-3, 1976).

FIGURE 6. DOWNWIND SO_2 AND SO_4 CONCENTRATIONS CALCULATED FROM THE MODEL OF FIGURE 5



Source: J. Philip Bromberg, "The Migration and Ultimate Fate of SO_2 Discharged into the Atmosphere" (paper delivered at the Fall Meeting of the Society of Mining Engineers of AIME, Denver, Colorado, September 1-3, 1976).

direction has not approached the need for the information. A better understanding of the remaining health benefits to be gained through further SO_2 emissions reduction is required if we are to mount an effective program. It is necessary to relate the cost effectiveness of various controls in terms of the relationship between reduced pollutant levels and the health benefits achieved.

Emission Control Options and Costs

Under the constraints of existing technology there exist three techniques for continuous sulfur oxide emissions reduction which are applicable to large-scale operations, though advances in technology may raise a number of others to the level of economic and technological feasibility by the mid or late 1980s.

These three are:

- —Alternate sources of low-sulfur coal which meet emission limitations upon direct combustion may be used.[6]
- —Before combustion, the sulfur content of the raw coal may be reduced by mechanical beneficiation.[7]
- —As the third alternative, higher sulfur coals may be used, and the SO_2 in the effluent gases is removed by post-combustion lime/limestone flue gas desulfurization (FGD).

FGD can remove as much as 90 percent of the flue gases by chemically reacting the gas with a lime or limestone slurry. Coal beneficiation mechanically separates the heavier rock- and sulfur-bearing mineral pyrites from coal. This technique reduces the sulfur-to-heat content ratio and yields a uniform fuel which can meet certain of the less stringent SIP standards. Beneficiation will not in general produce a coal which can meet the more stringent NSPS. Combining beneficiation with FGD is of special interest if FGD is to be used, since removal of sulfur reduces the SO_2 which must be removed by the FGD system, lowers the quantities of lime or limestone required, and, consequently, reduces the sludge and ash, with potential cost advantages.

The potential capacities and operating costs of the commercially available alternatives are shown in Tables 2 and 3, while the surface wastes are shown in Table 4.

Specific site and market conditions can be expected to determine efficient choices for each plant from among the various technologies. Examples of specific site and market conditions are: specific requirements of applicable emission standards, proximity to available low-sulfur coal deposits, proximity to available lime/limestone supplies, ability to dispose of sludge (and public acceptability), proximity to coal that can be beneficiated to meet standards, changing coal prices, accessible rail and barge transportation, age of facilities used, and capital availability.

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[6] It remains to be seen what effect the new Clean Air Act Amendments will have on the viability of these two. They do not allow use of low-sulfur coal alone as a means of meeting emission standards; however, they authorize credit for sulfur removed by coal beneficiation.

[7] See footnote 6.

TABLE 2. POTENTIAL CAPACITIES AND OPERATING COSTS OF COMMERCIALLY AVAILABLE CONTINUOUS SO_x CONTROLS

Control Technology	Lead Time (years)	Potential Capacity by 1980	Increase in Generating Costs (mills/kWh)
Low-sulfur coal[a]	3-6	20,000-40,000 MWe	4-7
Coal beneficiation	3-4	200-300 million tons coal per year[b]	0.5-2
Lime/limestone FGD	4-7	45,000-55,000 MWe	4-6[c]
Lime/limestone FGD with coal beneficiation[d]	4-7	somewhat more than 45,000-55,000 MWe for FGD above	3-5[d]

[a] Coal meeting new source performance standards, i.e., 1.2 pounds of SO_x per 1 million Btu.

[b] Only a minor fraction of the product meets existing SO_x emission standards.

[c] Based on a new 1,000 MWe plant using 3 percent sulfur northern Appalachian coal and meeting New Source Performance Standards.

[d] Use of the combined strategy instead of FGD alone reduces the sludge disposal and FGD capacities needed, thus increasing the capacity available by 1980.

Source: *Sulfur Oxide Control Technology,* Commerce Technical Advisory Board, U.S. Department of Commerce (September 10, 1975).

Active research and development programs are underway at present in a number of other areas. Chemical processes which remove the sulfur from the coal by chemical leaching are being studied by a number of institutions, and pilot-scale investigations will soon be undertaken. In "magnetic beneficiation" the pyritic sulfur is removed by magnetic fields. Fluid bed combustion is a process wherein the coal is mixed with limestone before combustion; the sulfur oxide products of combustion remain behind in the ash as solid sulfates and sulfites. Small-scale operations have been carried out in England and in this country with fluid bed boilers, and this process shows great promise, particularly in small boilers; its applicability to large boilers remains uncertain in the near future. Regenerable flue gas desulfurization would eliminate the severe sludge problems associated with lime/limestone FGD and would be particularly useful in urban areas where land-fill sites for sludge disposal are in short supply. But this process has yet to be successfully demonstrated on large-scale coal-fired boilers. A major effort is being devoted to the development of coal gasification and liquefaction, but these have not yet passed the pilot-plant stage, and the availability of liquid and gaseous sulfur-free fuel derived from coal is not anticipated

TABLE 3. CAPITAL COSTS FOR COMMERCIALLY AVAILABLE CONTINUOUS SO_x CONTROL TECHNOLOGIES (in dollars per kilowatt)[a]

Control Technology	To the Utility		To the Coal Producer
Lime/limestone FGD	FGD units	$54- 69	
	sludge disposal	$10- 50[b]	
	total	$64-119	
Lime/limestone FGD with high-coal beneficiation	FGD units	$36- 49	$16-23
	sludge disposal	$ 3- 14[b]	
	total	$39- 63	
Lime/limestone FGD with moderate coal beneficiation	FGD units	$42- 54	$ 7-11
	sludge disposal	$ 4- 20[b]	
	total	$46- 74	
Low-sulfur coal[c]	$5-$15		no increment for low- over high-sulfur coal
Coal beneficiation	nil		$ 7-23

[a] Based on a new 1,000 MWe plant using 3 percent sulfur northern Appalachian coal and meeting new source performance standards.

[b] The utility may in some instances contract for sludge disposal, lowering its capital investment, while generally raising the operating cost.

[c] Coal meeting new source performance standards, i.e., 1.2 pounds of SO_x per 1 million Btu.

Source: *Sulfur Oxide Control Technology,* Commerce Technical Advisory Board, U.S. Department of Commerce (September 10, 1975).

before 1985. At the present time, only the aforementioned three technologies are available in the sense that a utility may place orders for the delivery of the equipment and materials necessary for their implementation.

What Are the Technical Needs?

Policies governing increased use of coal in the United States must aim at utilization of a plentiful domestic energy source while conserving energy and natural resources, strengthening the national economy, protecting public health and safety, and improving the quality of the environment. In governing the use of coal, it is essential that we have the data base and analytical capability to assess the impacts of a given action or regulation in all of the above areas.

Decision makers in government and in the private sector need to be guided by knowledge and understanding of the impacts of different choices. Generally, decision makers will be reluctant to make large investments in emission controls whenever it is not clear that the controls will work or the desired benefits will be achieved.

Thus, we must start by recognizing that there exist key gaps in our under-

TABLE 4. GROSS SURFACE WASTES FOR COMMERCIALLY AVAILABLE CONTINUOUS SO_x EMISSION CONTROL TECHNOLOGIES[a]

	Limestone Requirements (tons/year)	Gross Wastes (tons/year)		
		At the Utility		At the Mine
		Ash	Sludge	Coal Refuse
No controls (for comparison)[b]		600,000		
Coal beneficiation (highest level for comparison)[b]		165,000		720,000
Lime FGD (alone)	230,000	600,000	500,000	
Lime FGD (with moderate coal beneficiation)	100,000	220,000	240,000	500,000
Lime FGD (with high-level coal beneficiation)	66,000	165,000	155,000	720,000

[a] Based on a new 1,000 MWe plant using 3 percent sulfur northern Appalachian coal and meeting new source performance standards.

[b] Does not meet new source performance standards.

Source: *Sulfur Oxide Control Technology,* Commerce Technical Advisory Board, U.S. Department of Commerce (September 10, 1975).

standing of emissions, environmental quality, and health impacts. Gaps in our understanding of the impacts expected in the use of different technologies exist as well. Any approach to effective intergovernmental cooperation in up-valley pollution transport management must be based on an all-out effort to obtain the data on which understanding of the problem and the impacts of various solutions depend. Among the areas where critical knowledge gaps exist are these:

ATMOSPHERIC CHEMISTRY AND TRANSPORT OF SO_2 EMISSIONS

We need an understanding of the factors affecting the rate of oxidation of SO_2 and SO_4 particulates and also their rate of transport downwind. What processes remove SO_2 and SO_4 from the environment, at what rates, and what affects these rates? What sulfate particulates are formed, what is their nature, and how long do they remain suspended in air? How do temperature, humidity, wind speed and other meteorological factors, and the presence of other pollutants in the air affect the level of SO_4 particulates in the air, at points both near and distant from the SO_2 emission source?

HEALTH BENEFITS

What are the health impacts on exposure of different elements of the population to sulfate particulates at different levels for different times?

What are the effects of different sulfates? Of different particle size? Is there evidence of existing health impacts attributable to SO_4 particulate exposure? What fractions of the achievable health benefits have been met by SO_2 emission reductions thus far, and what fraction will be achieved by projected SO_2 emission reductions?

MONITORING SO_2 AND SO_4 CONCENTRATIONS

Can a monitoring network be devised which gives a complete and on-going map of the SO_2 and SO_4 concentrations in the northeastern United States? Can we develop means of forecasting potential SO_4 "storms" and their origin, location, and path? Can such forecasts be used to initiate measures which would further reduce SO_2 emissions at key locations and thus prevent the build-up of such "storms"?

EMISSION CONTROLS

There need to be continued development of emission control technologies and greater understanding of their potential impact on resource conservation, environmental quality, land and water use, costs, and the economy.

Intensive development and land use of mechanical coal cleaning has the potential for producing the greatest reduction in emissions in the shortest time at the lowest cost. It produces a cleaner fuel and reduces the resources needed for transportation and ash disposal. Its use with high-sulfur coals generally meets the SIP SO_2 emission limits for existing rural plants; indeed, an advanced multistage cleaning process announced by the Pennsylvania Electric Company produces one portion of the coal which meets the stringent new source performance standards. Even when coal cleaning will not suffice to meet standards and scrubbing is still required, it reduces the size of the scrubbing plant needed, thus greatly reducing costs and the demands on land, water, limestone, and energy.

Present lime or limestone scrubbers will undergo continuous development which will increase their reliability and efficiency and reduce costs. Public policies must be applied so as to encourage and take advantage of such improvements.

Fluid bed combustion technologies and regenerative flue gas scrubbing processes which minimize resource use and waste disposal problems, although in an early state of development in the United States, represent potential major advances in SO_2 emission control technologies in the next decade. Their development and analyses of their costs and expected impacts must be strongly promoted.

Major efforts to develop technologies for conversion of coal to a low-sulfur liquid fuel or to a low- or high-Btu gas are underway. Their use in the next decades will be dependent on technological and economic factors in a world of rising energy costs.

POSSIBILITIES FOR INTERGOVERNMENTAL COOPERATION

It appears that SO_2 and particulate emissions from coal-fired electrical generating plants (and other industrial plants as well) contribute substantially to ambient SO_4 and other particulate concentrations. These represent potential environmental and health hazards at distances extending many hundreds of miles downwind from the emission sources. Thus, intergovernmental cooperation in the management of up-valley pollution transport is clearly a concern, especially for the six states being considered here.

The authors are in no way expert in matters of governmental organization, so we will restrict our discussion to some of the most basic of elements which we believe such intergovernmental cooperation must consider.

We believe some of the key questions of fact to be these:

- What are the dimensions of the problem?
- What benefits, in terms of lowered SO_4 particulate levels and health hazards downwind, will a given lowering of SO_2 emissions (either continuously or during a given critical interval) produce?
- What are the options in technological controls and regulatory practices for reducing SO_2 emissions, and what are their impacts in economic, environmental, and resource use terms?

The functions which must be provided in any intergovernmental cooperative approach to pollution transport management must include mechanisms for: data gathering, analysis, and assessment; preparation of position papers laying out the range of options on problem statements, policy, and possible actions (with a statement of expected impacts on health, environment, resource use, and the economy); decision making; and implementation.

The exact nature of such responsibilities and authorities, how the functions are provided, and who is represented are all basic issues beyond the scope of this paper. However, as very general input, we do venture these suggestions for further consideration:

- There probably needs to be a small professional staff capable of undertaking the data analysis and assessment mentioned above.
- Data gathering and monitoring could be the function of individual state and federal agencies, supplemented by inputs from EPRI investigators and individual companies. The purpose of intergovernmental cooperation would be to ensure that a proper network of data stations is established to provide for coordination of their activities and to assess the reliability and significance of the results.
- There could be established, as a first step, a technical council or round table, with representation from each of the states and federal agencies involved in the intergovernmental coordinating body. This could be

initiated by an in-depth technical symposium aimed at reviewing the dimensions of the problem and the level of knowledge, with special attention to identification of critical knowledge gaps and the means of filling them.

— The technical council (or round table) could be charged with ongoing oversight and review of all of the technical operations relevant to intergovernmental cooperation and with making periodic reports and recommendations setting forth position papers, policies, and actions for consideration by all parties.

— The technical council could establish specific advisory councils on such matters as monitoring, atmospheric chemistry and transport, health effects, emission control technologies, economic and environmental impacts, and resource conservation. Such councils should have a balanced representation of individual professionals from the various regions of the Ohio River Valley, from appropriate disciplines, from the various universities, industries, health, and environmental institutions. These advisory bodies should review and report from time to time on such technical questions and issues as the technical council requests.

Whatever organization may be evolved for promoting effective intergovernmental cooperation, we see its main function as an instrument and a forum where the facts relevant to SO_2 emissions and up-valley transport of pollutants can be established, critically examined, and made visible to all parties. Further, the impacts — costs and benefits — of various regulatory or operational policies can be thoroughly examined and weighed by the concerned parties.

Finally, in any such intergovernmental cooperation, we believe priority should be given to the three key questions posed earlier and to the following related assignments:

— To determine the state of knowledge and research relating SO_2 emissions to SO_4 particulate levels and health effects. To urge specific means of strengthening federal, state, and private research and development efforts to ensure that the necessary scientific understanding and technological developments are achieved in the shortest possible time.

— To review the monitoring of SO_2 and SO_4 ambient levels and related health impacts and the analysis of such data. To recommend how monitoring and related analysis may be strengthened to achieve the daily "snapshot" of ambient concentrations needed for proper management of this problem.

— To strengthen the capabilities needed to assess fully the impacts on health, environment, resource conservation, and the economy of alternate approaches to SO_2 emissions regulatory policy.

— To project the likely ranges for the rate of expansion of coal-fired electrical generating capacity and total SO_2 emissions in the Ohio River Basin and adjacent midwest regions through surveys of utilities' plans for installations of new plants and of SO_2 emissions controls, supplemented by the use of demand-forecasting techniques.

A REGION'S ENERGY AND ENVIRONMENTAL FUTURE: ORGANIZATIONAL OPTIONS

Boyd R. Keenan and John A. Wenston

As noted in the opening paper, an advisory committee helping to plan this Assembly suggested that high priority be given to consideration of possible organizational options for attacking energy and environmental needs in the Ohio River Valley. The preceding papers also illustrate well that these "needs" are so plentiful they almost defy enumeration. But the following list contains many of the most prominent:

- investment capital for mining, transportation, electricity generation, transmission, and emission controls
- large-scale guaranteed market for coal
- manpower development and relocation
- assistance for "boom and bust" towns
- local infrastructure development
- simplification of mine and power plant permit procedures
- uniform mine safety standards and strict enforcement
- cooperative efforts by small coal-mining companies
- preservation of agricultural lands
- monitoring of air and water quality
- control of air and water pollution
- adequate reclamation of surface and underground mines
- ensuring optimal power plant siting
- ensuring safety security of nuclear plants
- developing approaches to energy conservation

As this list shows, the magnitude of the problems facing the Ohio River Valley is staggering. It is unlikely that the states in the valley can meet this challenge alone. Some form of regional cooperation seems required. Regional cooperation might be initiated through informal associations among state officials and/or interest groups. In the absence of decisive cooperative action by the states, however, it is possible that the federal government will seek to assume responsibility for the major energy and environmental policy decisions in the valley.

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This paper will explore a third alternative: regional cooperation through multistate regional organizations. Within the context of energy and environmental questions being discussed at this Assembly, the critical question is whether these problems are serious enough to give additional power to a regional entity at the expense of the states. At the same time, however, should the energy-environmental dilemma grow more critical, the possibility of federal preemption of state authority will likely always be present.

Are any hints available from the White House as to what proposals may come from that quarter? In his paper, Dillon has offered excerpts from the working document for the White House Conference on Balanced Growth and Economic Development as the latest thinking on regionalism from the Carter administration. The White House document mentions the need to assess such entities as interstate compact organizations, Title V commissions, the Appalachian Regional Commission, Title II basin commissions, and federal regional councils. Of course there are many other types of regional patterns.

While it is impossible to neatly classify the multitude of regional organizations in the United States, most such organizations can be grouped under three broad headings: forums, catalysts, and "authorities" with operational, management, or regulatory powers.[1] Two of these types, forums and authorities, can be interstate, federal, or joint federal-interstate endeavors. Catalysts, by their very nature, are joint federal-interstate endeavors. Table 1 below is an effort to graphically list these various types of multistate regional agencies. Assembly participants may wish to use the table as a framework for developing their own more complete categories.

MULTISTATE REGIONAL FORUMS

Forums are just what the name implies: vehicles for discussion, exchange of information, planning, and coordination of effort. Forum agencies have no regulatory authority but must rely on persuasion, lobbying, and public support to effect their goals.

The Interstate Forum

There are scores of forum agencies at the interstate level, most of them set up through interstate compacts. Examples include the Atlantic States Marine Fisheries Commission and the Southern Interstate Nuclear Board. Interstate forums are typically governed by a commission composed of representatives from each state, with a small full-time staff conducting most of the agency's business. They attempt to resolve interstate problems through discussion, planning, lobbying, and coordination of state efforts. An interstate energy forum could serve to bring responsible state officials together periodically to discuss common concerns and might help to mediate conflicts among the states.

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[1] The term "catalyst," as used here, is borrowed most heavily from Martha Derthick as she developed it in her book *Between Nation and State* (Washington, D.C.: The Brookings Institution, 1974). In particular see Chapters 1 and 4.

TABLE 1. MAJOR TYPES OF MULTISTATE REGIONAL ORGANIZATIONS

Type of Organization	Example
Forums	
Interstate	Atlantic States Marine Fisheries Compact Southern Interstate Nuclear Board
Federal	federal regional councils
Joint federal-interstate	Title II (river basin commissions, such as Ohio River Basin Commission)
Catalysts	
Joint federal-interstate	Appalachian Regional Commission
"Authorities" with management or regulatory powers	
Interstate	ORSANCO New York Port Authority
Federal	TVA
Joint federal-interstate	Delaware River Basin Commission

The Federal Forum

The only examples of federal multistate regional forums are the federal regional councils. The councils are interagency coordinating forums, composed of the regional office heads of several federal agencies. They represent an effort to decentralize the management of federal departments and meet regularly to resolve conflicts and coordinate grant-in-aid programs. A federal regional energy council might consist of agencies involved in energy and environmental-related matters.

The Joint Federal-Interstate Forum

Joint federal-interstate forum agencies combine the characteristics of federal and interstate forum organizations. They are composed of representatives from the states and representatives from federal agencies. The major examples of such forum agencies are the river basin commissions created by Title II of the Water Resources Act of 1965. The commissions attempt to coordinate agency programs and federal and state interests. They set up a process for continuous planning. Hays has discussed one such commission, the Ohio River Basin Commission (ORBC), and has noted its advantages.

Many of the conditions identified by Hays as advantages are often cited as disadvantages. Unanimity is required in such joint federal-interstate forums, and some feel that the necessity for unanimity tends to paralyze a regional body. In this same connection a single representative cannot speak authoritatively for a state or a federal agency. Another potential problem is that federal agencies with superior resources and technical skills may well control the forum, with little input actually coming from the states. Finally, the fact that the forum cannot compel agencies to take certain action may give the agencies little incentive to compromise, and thus may decrease the possibility that any decision will be reached in the first place.

Despite these criticisms, one must be impressed by reasons given by Hays as to why final recommendations of such a regional group "should consist of those implementation actions opposed by no one, those studies and investigations which all agree are necessary to make decisions on other potential projects and programs." As Hays further notes, "River basin commission participation does not require states to give up any of their sovereign powers." Finally, he points out the strength of the consensus method by which the commissions operate.

MULTISTATE REGIONAL CATALYSTS

Catalysts are joint organizations, lying somewhere between the federal and state levels. They formulate regional goals cooperatively with the states and the federal government. They attempt to implement those goals through persuasion, lobbying, the provision of technical and financial assistance, and the administration of federal grant programs.

While all regional agencies can be considered catalysts, the term is used here to denote a specific type of organization, one that is devoted to changing the actions of the local, state, and federal governments through a specific set of programs.[2] Major examples of multistate catalyst agencies would be the Appalachian Regional Commission (ARC) and the regional economic development commissions created pursuant to Title V of the Public Works and Economic Development Act of 1965.

In his paper, Dillon touched upon a controversial proposal when he noted that the White House might "favorably" consider amending the Appalachian Regional Development Act. Under the possibility envisaged by Dillon, such an amendment would give the ARC jurisdiction over the Ohio River Valley and mining counties of Indiana and Illinois.

Merit of Amending ARC Legislation

It is suspected that a formal proposal to place the pertinent Illinois and Indiana counties under ARC jurisdiction for certain energy-related activities, such as power plant siting, would evoke emotional responses. It is hoped that Assembly delegates from those states will be prepared with reactions.

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[2] See Derthick, *Between Nation and State,* Chapter 5.

In considering such a proposal, the internal structure of ARC is relevant. Some have argued that ARC could create and fund local energy development districts (LEDDs), patterned after the Appalachian Local Development Districts. If this pattern were followed, the LEDDs would be multicounty districts designated by the states and the regional agency. The districts would have the power to issue bonds for energy development.

To assure a market for those bonds a separate federal financial corporation could be set up to buy them. Such a corporation could also make loans to the local districts. The range of services covered by the LEDDs could include loans to coal companies, coal haulers, and utilities. Other possible activities might include the issuing of revenue bonds for building and leasing stack gas scrubbers, local infrastructure development, construction of access roads, and assistance to industries and businesses in conserving energy.

These energy development efforts might also be coupled with general economic development assistance, in an attempt to diversify the local economy enough to prevent economic collapse if and when energy production in the area slows down. The catalyst agency could also be responsible for the administration of a federal grant program.

Disadvantages of ARC Expansion

One major problem in implementing such an expansion of ARC would be the requirements for large-scale, coordinated action by a federal government already straining under fiscal burdens. Broad and extensive grant programs would be needed and a new federal corporation would be necessary to buy LEDD bonds. If the ARC were to be strengthened to perform these functions in the absence of such federal aids, the agency would become ineffective in attempting to achieve most of its goals. This has apparently been the case with the Title V commissions.

Setting up a regional catalyst agency to administer grants would also require that federal line agencies delegate some of their authority to a semiautonomous regional agency, something many of the agencies would be hesitant to do. Finally, there is the problem of getting states to engage in regional planning. One of the problems with the ARC in its present form is that many of the states have tended to take a functional approach to ARC-administered programs and have not integrated them into an overall development plan.[3]

MULTISTATE AUTHORITY ORGANIZATIONS

In Table 1 the third type of multistate organization is listed as "authorities" with management or regulatory powers. Government-operated regional

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[3] Ibid.

"authorities" with regulatory or management powers can take many forms, from unifunctional agencies with limited regulatory power to multipurpose government corporations with broad developmental authority. Within this broad category, in Table 1 three subtypes are suggested: interstate, federal, and joint federal-interstate.

Interstate "Authority" Organizations

Probably most widely known among the interstate "authority" organizations are transportation agencies, such as the Port of New York Authority, centered around a single metropolitan area. Yet there are regulatory agencies that cover an area across several states, a prominent example being the Ohio River Valley Water Sanitation Commission (ORSANCO), discussed in previous papers. Transportation authorities normally are genuine corporations and usually have ample resources and broad development powers, while regulatory agencies like ORSANCO usually have less funding and are somewhat more limited in the power they can exercise. Both types are governed by boards composed of representatives from the states.

Emerging starkly in virtually every discussion of this kind is the reality that pressures in the Ohio River Valley are mounting for interstate authorities to deal with competing functions, that is, regulatory issues versus development issues.

Reeves noted that the governor of Kentucky proposed some months ago that an interstate Ohio River Valley power-plant siting agency be created. Apparently officials of neighboring states were less than enthusiastic about the idea. Nothing of the proposal has been heard in recent months either from Kentucky or the other states.

It is suspected that development-oriented officials in the various states are not necessarily opposed to all regional schemes and, indeed, might support interstate devices to encourage energy development. Of course the point is that interest in both environmental regulations and energy development is peaking at the very same time.

STRENGTHENING OF ORSANCO?

There is occasionally talk of strengthening ORSANCO so that it might accept additional regulatory authority beyond those responsibilities which it currently holds in water quality. Among those powers which some would like to see lodged in such a regulatory agency are those relating to the zoning of ecologically sensitive areas or rural areas undergoing rapid development.

The proposed concentration of power plants in the stretch of the valley between Louisville and Cincinnati has caused many environmental groups in that area to advocate some form of interstate siting arrangement not unlike Kentucky Governor Julian Carroll's original plan. A body charged with this responsibility might also issue master permits for mining and drilling. One can assume that such suggestions would meet fierce opposition.

A major difficulty with such a multistate organization is that the federal government is not bound by state regulations. In the matter of nuclear plant licensing and siting this is of particular significance. In this connection Reeves quotes one pertinent suggestion. It is that an effective approach for avoiding federal-state conflicts in siting, licensing, and regulation of nuclear facilities and for permitting timely decision making would be for the federal government to preempt authority for such activities in all areas relating to health and safety. The federal government would then delegate back to the states broad regulatory authority to be exercised on a regional basis through interstate compacts.

POSSIBLE INTERSTATE ENERGY DEVELOPMENT AUTHORITY

The idea of an interstate energy development authority is not new. As was reported in the paper by Keenan, an organization known as the Coalition of Northeastern Governors is supporting such a plan for that region. And spokesmen for the group have urged Appalachian states to consider a similar arrangement. Under the northeastern governors' proposal, a development entity in Appalachia would sell coal to the energy-starved northeast.

As conceived at present by a number of people discussing this idea, the most important function of an interstate energy development authority would be to generate investment capital. The authority would likely be empowered to issue bonds and make low-interest loans to coal-mining companies, coal haulers, and utilities. Other functions of such an interstate authority might include research and development — especially into coal cleaning and clean combustion technologies. The formation of cooperative agreements with universities and energy producers to develop trained personnel would also be a possibility. An interstate energy research center is often suggested.

An interstate authority of this sort could be funded in a variety of ways. It could sell tax-exempt bonds, which would probably have to be guaranteed or purchased by the federal or state governments. The authority could also receive state appropriations. This could be in the form of an initial capital endowment, subscription to an issue of stock, or yearly appropriations. An authority might also be empowered by the states to levy an area-wide tax, although at present it is highly unlikely that individual state legislatures would support such a plan.

At the center of problems associated with such an authority is the uncertainty over the demand for coal. A drop in the price of OPEC oil, discovery of new gas and oil reserves, or the development of inexpensive alternative sources of energy could drastically reduce demand for coal. In such a case, an authority with heavy investments in coal would collapse.

Possible Federal Authority Organization

The major example of a federal regional agency with operational, management, and regulatory powers — and the only case of a genuine federal regional *corporation* — is the Tennessee Valley Authority (TVA). By almost any tangible measure, such as capital assets, revenues, or employment, as well as by delegated authority, TVA is the most powerful regional organization in the United States. As most participants in this Assembly well know, TVA exercises broad powers over a seven-state region. Its main functions center around multipurpose river development, fertilizer production, and power generation. But it also concerns itself with social and economic development, natural resource conservation, and regional planning.

Speculation about a federal corporation in the Ohio River Valley that would engage in environmental and/or energy development activities is probably a useless exercise. Barring catastrophic developments at the international level which would force emergency action, it seems safe to assume that no "Ohio River TVA" will be formed in the next decade. That the TVA was in fact created is probably due more to a historical accident than to anything else, and even its most ardent supporters doubt that another such corporation could be established.

None of the background paper authors has advocated creation of a TVA-type organization for the Ohio River Valley. And it appears unlikely that such a proposal will emerge from the White House. However, many overlapping problems faced by the broad Ohio River Basin (as hydrologically defined) and the Tennessee River (as a tributary of the Ohio) require that TVA be taken into account in all discussions.

Joint Federal-Interstate "Authorities"

In Hays's paper, details are given with respect to the philosophy underlying the Title II river basin commissions. The theme of the paper is that the Ohio River Basin Commission (ORBC) is a comprehensive planning organization, and hence it is defined within the nomenclature of this paper as a "forum."

Is there no river valley interstate model in the country which actually gives the planning entity authority to make broad valley decisions, includes the federal government in the action, and yet stops short of the powerful TVA pattern? There are currently only two examples of joint federal-interstate development and regulatory agencies with these characteristics: the Delaware River Basin Commission (DRBC) and the Susquehanna River Basin Commission. They were both created by federal-interstate compacts.

The DRBC, older and larger of these two organizations, was created in

1961; it includes the federal government and the four states of Delaware, New Jersey, New York, and Pennsylvania as members. Because of its role in electric utility facility siting since 1971, it deserves the attention of those seeking alternatives for handling problems of multistate power plant siting in the Ohio River Valley.

Since 1971 the DRBC has required that a utility planning a substantial power plant installation in one of the four states place a set of broad plans before the commission for approval. The plans must include a master siting study for the entire basin and a site selection analysis for the project. The siting study must relate the proposal to all existing generating stations within the basin and all those proposed for the ensuing fifteen-year period. Also to be included are the concept, capacity, and fuel source of each project and other information such as water requirements and water-related ecological effects.

Advocates of the DRBC concept for the Ohio River Valley argue that it would combine limited energy development powers with regulatory authority over the use of natural resources. An organization patterned after DRBC would have the powers of a corporation, including the power to sue and be sued, to enter into contracts, and to own, lease, and sell property. In addition, the organization would have the power of eminent domain and be tax exempt.

The governing board of the DRBC is composed of the governors of the states involved and a single federal representative. Action by the commission requires a majority vote. However, the federal representative must concur in the action of the authority if federal agencies are to be bound by that action. Moreover, the President has the right to override or suspend any action of the commission if he deems it in the national interest.

Most authors view this federal-interstate compact model as potentially effective as a *regulatory* body. However, there is considerable uncertainty as to its effectiveness in developing resources. The fifteen-year siting study required of public utilities, as noted above, would seem worthy of attention in the Ohio River Valley at the present time. An organization based on the DRBC could also require the submission of reclamation plans for coal mines and the posting of performance bonds before the mine permit is granted.

Creation of an organization modeled after the DRBC in the Ohio River Valley would likely meet opposition from various federal agencies. Moreover, the wide differences of opinion within the federal government could cause the federal member, who supposedly represents the "federal interest," to avoid making potentially controversial commitments.

SUMMARY

Beyond the structural complexities of the above options and the difficulties inherent in different types of regional organizations, there are questions involving regionalism itself as an approach to the energy "crisis" at the national level.

Certainly there is justification for regulating our environment, particularly water resources, on a regional basis. But energy policy is a national as well as a regional issue. In the next few years, the nation will need to develop not only Appalachian coal, but western coal, off-shore oil, nuclear power, oil shale, solar energy, and other sources. Indeed, energy policy is very much an international issue, as we will be dependent upon foreign sources of energy for many years to come. Moreover, the effect of the energy crisis on our economy will have global repercussions. The solutions to our energy problems require a coordinated national policy. The regional approach may be too narrow. Finally, the development of regional organizations to develop regional energy resources could well result in balkanization of regions.

Conflicts between states and regions over energy are already quite severe. Some knowledgeable observers argue that the injection of new regional organizations into this situation might escalate that conflict into all-out economic warfare. If regionalism has no promise for solving energy and environmental problems in the Ohio River Valley, it is unlikely to have much meaning elsewhere around the United States. But somehow answers to these dilemmas must be found if the social and political values of the United States — indeed the western world — are to be preserved.

LEGISLATIVE PERSPECTIVES

LEGISLATIVE PERSPECTIVES

Legislators from five of the six states which border the Ohio River participated prominently in the Assembly. (The General Assembly in the sixth state of the valley, Pennsylvania, was in session during the conference.) Three legislators served as chairmen for the round-table sections and provided leadership throughout the entire Assembly. They were Senator Walter Rollins of Kenova, West Virginia, Senator Lowell Hughes of Ashland, Kentucky, and Representative Joe E. Lucco of Edwardsville, Illinois. Three other legislators assisted their colleagues as cochairmen in the round-table sections and brought valuable diversity of opinions to the Assembly. They were Representative Elmer Dietz of Ludlow, Kentucky, Representative Richard B. Wathen of Jeffersonville, Indiana, and Representative John Wargo of Lisbon, Ohio. At a plenary session on the second day of the Assembly the six legislators made the following statements, presented here in the order of their delivery.

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Senator Walter Rollins

State of West Virginia

I do not subscribe to the theory that my primary senatorial duty is to provide shelter, food, medical aid, safety, eternal life, love, and happiness to every citizen in West Virginia.

I do accept the responsibility to become involved in any activity that will improve the posture of my state, and that is the basic reason I wanted to be a part of this Assembly.

While West Virginia is the smallest of the six states here represented, it, until recently, was the largest producer of bituminous coal. This attaches us to the first part of the Assembly identification, energy. Because of our location in the river basin and because of the use of coal in many of our plants and industries, the second part, environment, also gives me a certain identity.

After having talked with the members of my workshop group, individually and collectively, I have begun to realize just how beneficial this meeting will be. I sincerely believe the speculated "cooperation" will turn from a "possible" into an exciting "probable." I am convinced that when those of us representing West Virginia report to the legislative and executive branches, our reports will be positive.

Legislators have always been an integral part of regional activities and my state has a statutory body, the Commission on Interstate Cooperation, that concerns itself with the problems and challenges we are here addressing.

Quite often to legislators, it seems, the executive branch becomes the dominant agency in interstate discussions. But to a great degree, the West Virginia legislature has insisted that it play a separate, but equal, role with the governor. The need for both groups to be represented is twofold: (1) recommendations often lead to the enactment of laws and (2) the dialogue between the executive and legislative branches at meetings such as this is helpful in promoting not only matters affecting the several states, but those that require cooperation intrastate between the two branches. I am pleased that the legislative and executive branches of West Virginia are here and that the chairman of our Public Service Commission is also a delegate.

Historically, state governments require and issue birth certificates and burial permits. Between this alpha and omega of our mortal existence they regulate our lives in a number of ways. This means that *state government* controls the activities of its citizens. In recent periods, however, legislators have expressed their concern over the encroachment of federal agencies upon the states' authorities. This is not of itself objectionable if the federal government will also accept the responsibility to be accountable.

The discussions during the past two days, which will lead to some future cooperative effort and in which legislators will be directly involved, might well be the seed of a needed and important coalition or unified effort. I am happy to be a part of this Assembly.

Senator Lowell Hughes

Commonwealth of Kentucky

It has been an educational experience for me to be here with all of you who are so knowledgeable in the energy and environmental areas we are discussing. One thing I have learned very quickly in my limited time in the General Assembly of Kentucky is that, by definition, most legislators are generalists. There are so many issues that legislators must act upon. The only possible way that we can make decisions with any degree of accuracy is to learn from people who are the experts, those who have devoted a large part of their lives to studying a particular field. After serving the first time in the 1976 session, I surprised many people in my district by coming back home and saying just that.

The fact is that the Kentucky General Assembly is a very weak legislative body as established by the constitution. Kentucky is basically an "administration" or governor-controlled state. If it were not for the special-interest people providing the legislators with information, the General Assembly, in fact, could not work at all. Participation in this Assembly also has fortified my personal opinion as to the necessary and beneficial services performed by dedicated bureaucrats in our various states.

With regard to the Kentucky General Assembly's reaction to interstate compacts in the energy and environmental fields, frankly I do not know what the response might be. I know of no reason why it would be especially negative. In the Kentucky General Assembly, I believe, there is a very definite awareness of the energy problem in the country and the opportunities and responsibilities that the energy problem provides for Kentucky. One opportunity we took in Kentucky was to increase our severance tax on coal. This severance tax issue will probably come up again at the next legislative session because we export that tax to people in other states.

I do believe that the Kentucky General Assembly would be most receptive to working in conjunction with the surrounding states. As I said earlier in our workshop meeting, we cannot ignore the problems of the neighboring states resulting from the energy crisis. Particularly pressing are those problems associated with the wonderful Ohio River and the industrial and power plant sites which it has attracted.

I believe that Professor Keenan mentioned in one of his earlier comments that perhaps one goal of the conference will be to create an energy-environmental diplomatic corps for the valley. Indeed, you are creating an element of such a corps in myself, back to the General Assembly of Kentucky. I have certainly become more aware of the complexity of the problems involved, will consider it my duty to make those problems known, and will hopefully generate some activity in my state.

Representative Joe E. Lucco

State of Illinois

Over the past year you have been hearing much of the "balkanization" of the states in the valley by energy and environmental conflicts. As our workshop group discussed the issues of this Assembly, however, two other pertinent words were emphasized — vulcanize and polarize. I see within this Assembly groups that normally are polarized. It is unfortunate that I had to fly all the way from Illinois to meet with fellow Illinoisans who are working in administrative agencies that I hear about but actually know very little of. I find that I can now go back with a better respect for the work and problems of these agencies than I had before I came. This conference is accomplishing something. It is "vulcanizing" together some of the "polarized" factions.

I believe that this particular conference emphasizes the importance of elected officials. Too many appointed officials and too many self-appointed officials sometimes ignore the elected official. However, when the chips are down and appropriations are necessary, the final stamp of approval must be given, and it is we, the elected officials, who give it. And we legislators are the ones who need to be kept informed.

Members of our workshop group stressed over and over the need for communication and dissemination of facts and knowledge. If nothing else is accomplished at this Assembly, we legislators can go home and do a better job of explaining the issues involved in developing sound energy and environmental policy for the country, for the Ohio River Basin, and for southern Illinois. However, keep in mind that when I talk "home," I am not really concerned about getting support from a Chicago resident, because he cannot vote for me. I run in the fifty-sixth district, a highly industrialized district with many steel plants, coal mines, and oil refineries. My thinking is somewhat oriented by my constituents' thinking, so I have to know what those people want.

If someone were to ask me about "regionalism," I would say it is a nasty word in my particular area. People have a fear of it. They really have a mental block toward any type of regionalism. The townships fear the counties, the counties fear the state, and my part of the state fears Chicago.

Regardless of this, legislators need to become involved with conferences such as this one. It is a real educational experience. I hope that there will be another conference of this type. I believe it is necessary because all the problems are not going to be solved here today. If there is another Assembly, I hope you invite not only this group of legislators — if we may be egotistical about it — but more legislators because they give final approval to any cooperative action in energy and environmental affairs.

Representative Elmer Dietz

Commonwealth of Kentucky

The area in Kentucky which I represent lies on the Ohio River. We are having our problems on the river with many projects. As we discuss the problems of energy and the environment, I believe that we must keep foremost in our minds the effects of new policies and plans on the common workingman. We simply must keep the level of unemployment at a minimum. I believe that is extremely important.

I am serving on an energy-related committee of the Kentucky House of Representatives. I have served on this committee for only two months now. I am new at it, and I came here to learn. Indeed, I am learning a tremendous amount.

Representative Richard B. Wathen

State of Indiana

I feel my own role at this Assembly is to listen and to learn. However, I believe that I should interpret some of the problems in my state of Indiana to you. We are a state with a Republican governor, a Democratic Senate, and a Republican House. Even when all three — governor, Senate, and House — are of the same party, we are a very independent-minded legislature. I am very proud of my state. We are a prudent, conservative state.

People in Indiana, I believe, do not approve of regionalism. I would suggest that any recommendations put forward for consideration by this Assembly imply that we try to work with what we have and not create yet another new "body." In Indiana two committees of the legislature were established for the sole purpose of cutting down the agencies we already have. I am a member of one of the few cooperative ventures that Indiana has with other states, the Falls of the Ohio Bistate Park Commission. I have been a member of that commission since 1969, and we have done absolutely nothing.

I represent the sixty-seventh district, which is in the western end of Clark County. Our most glamorous industry, and just about our most important, is the Jeff Boat Company. We make a lot of boats and barges that go up and down the river. We are a river town and our people like the river, like to use it for boating, fishing, and hunting. We also have a large ammunition plant in Charleston, Indiana, just to the east of my district. That too is one of our big employers.

It is a pleasure to be here, and I look forward to reporting on this meeting to the leader of the Indiana House, Representative Kermit Burrous, who nominated me to attend. I shall even report our deliberations to the Democratic Senate.

Representative John Wargo

State of Ohio

In discussing the issues of this Assembly relating to intergovernmental energy and environmental cooperation, I believe that we should encourage a balance of views. We must have input from the bureaucrats, legislators, university professors and researchers, industrialists, utility representatives, and the common laborer. I believe, however, in order to sell the idea of states working together on energy and environmental matters, we must drop the word "regionalism." If this Assembly suggests any mechanism for working cooperatively, perhaps it could be called a multistate unit or an Ohio River Basin compact organization. But in my district people hate the word regionalism. They hate the idea of being put in a position where they have to go to a higher authority, to a different county, to a different area, in order to be heard.

The states represented here today have common problems in dealing with energy and the environment. If we can make a beginning in solving some of these problems, I feel the conference will have been a success.

I would like to caution those who are here from the universities, those who are the dreamers, thinkers, and creators, that when you weed the carrot patch, do not trample down the corn, the peas, and the tomatoes in the process. Keep a balance in what you are proposing. Those of us who have to implement your proposed programs must be reviewed by the public every two years at the ballot box.

I would like to suggest that some thought be given to the placement of power units in the Ohio River which would operate, as we were told by the Corps of Engineers, in the location of the locks and could generate power at no cost except for maintenance, once they are built. Units such as these are being produced and are being used overseas. We have miles and miles of river where they could be placed. They could be used particularly to generate power during the off-peak hours and at no cost. Perhaps this is the reason why they aren't being built.

Another energy source I would like you to consider is the use of limestone to produce carbide gas and acetylene gas. Ohio is underlaid with limestone, and although I do not know the respective cost of production, I should think it is a feasible source of power that deserves investigation.

SPEECHES

ENERGY REALITIES IN THE OHIO RIVER VALLEY AND IN WASHINGTON

James Kellett

Of course the Energy Research and Development Administration (ERDA) had not yet been absorbed by the new U.S. Department of Energy when the Institute of Government and Public Affairs proposed this Assembly to us about a year and a half ago. Then, as now, we felt it was important that representatives of six states, regional organizations, and federal agencies look intensively at the possibilities for strengthening intergovernmental cooperation in energy and environmental affairs in the Ohio River Valley.

After reviewing the background papers that have been prepared for the Assembly in the context of our serious national energy problems, I must admit to a bit of pessimism. This bothers me a great deal. From a practical point of view it is not good to start an exercise such as this on anything less than an optimistic — or even a "go get 'em" — note. Particularly as an ex-teacher, I regret such feelings, and yet teachers should be honest above all.

I think the realities of the situation are such that perhaps these feelings are appropriate. Personally, I look at the issues discussed in the background papers through the eyes of both an ex-teacher and a technical scientist. I was a technical scientist before I became a bureaucrat.

Some of the ideas in the paper by Thomas Fox and Philip Bromberg seem particularly appropriate from a technical point of view. Their words brought back the thoughts of the heavy-handed advice in Omar Khayyam which warns, "The moving finger writes. And having writ, moves on. Not all thy wit nor piety can call it back to change a half a line nor all thy tears wash out a word of it."

Recalling these words, I sensed — as a scientist — some ominous urgency in energy and environmental matters. Nature's moving finger has written what I think is a cruel message, and it writes it for all of us, whether in the Ohio River Valley or in Washington, D.C. We have revived and restored the credibility of King Hubbert's sobering projections on the limited reserves of fossil fuels. The industrial revolution does indeed appear to have finally shown us that we have finite resources and that those limits are measurable. This industrial revolution, with its bounty of fuel, has permitted us to avoid

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some hard survival choices which we would have otherwise been forced to make, or perish.

It is true that Malthusian predictions have been disproven — at least in the short run. But they really may have been merely postponed or relegated to being only one of several choices man may make. Our population has soared. Our science and its handmaiden, technology, have comforted our existence. Food abounds. And all this has been relatively easy.

Yet a benign environment in nature sometimes permits the evolution of a species with low survival drive. Our lives abound with examples. I don't think the cow, the currently producing chicken, or the hybrid corn would survive very long without our constant nurturing and care. So does a benign environment permit men to avoid serious tests of their evolving social systems. We are at the moment enthusiastic supporters of a particular social and political order, known variously as the major democracy of western capitalism, a constitutional republic, or what have you. The founders of this glorious experiment did foresee the need for change and laid the foundations for a flexible society which has indeed changed over two centuries.

But a new challenge before our system is that of adjusting — at least for a few years — to the shocking realization that certain resources, including fuel for our energy machines, are finite. If our nation successfully makes this adjustment, it will be because our federal system contains both strength and a new kind of flexibility.

Our discussions in the next few days will explore one of the unique aspects of this federal system — the delegation of authority and responsibilities up *and* down the hierarchy of government from the individuals governed through succeeding layers to the federal government. We are exploring the latest crisis facing our country: the availability of safe energy. We are testing the flexibility of our order in the process. This specific issue at hand — energy — is well described as a complex interrelationship with and between other complex systems. The economy, natural and biological science, engineering capability, social behavior, and politics are worthy systems for discussion in their own right. Yet in dealing with energy in a meaningful way, no one contributing system can be ignored.

We are exploring new relationships between the public and government in the area of energy, where many citizens deny the existence of a problem. We face a particular challenge in the new Department of Energy. We hope to open and maintain new channels of communication on the issue of energy. Particular effort has been devoted to developing an organization that promotes effective interaction between the department and other government units and public interest groups — business, labor, and industry. On behalf of the new department, I welcome you to this conference and hope that our deliberations make a positive contribution to finding solutions to the energy-related problems facing us.

I particularly commend the University of Illinois for having developed for us an example of the way the academic community contributes to our common goals. By providing a neutral and objective forum and by offering gentle guidance through difficult and tension-laden issues, this community can contribute to an enlarged view of the problems and enhance the possibilities for more satisfying solutions.

A NEW ENVIRONMENTAL VIEW OF THE OHIO RIVER VALLEY

Stephen J. Gage

The Environmental Protection Agency is pleased to cosponsor this Assembly with the Department of Energy. It's nice to start off with the new Department cooperating so closely with the EPA.

I bring greetings from the new administrator of EPA, Douglas Costle. He is a former state official and is very interested in the subject of your Assembly. As director of the Department of Natural Resources in the state of Connecticut, he became familiar with the questions of energy supply and environmental protection from the point of view of a state official. Since becoming administrator of EPA, he is increasingly involved in many issues which are similar to those you will be discussing here. For example, he strongly supported amendments to the Clean Air Act which would require the use of locally available coal with the concurrent use of scrubbers to reduce sulfur oxide pollution.

I am also pleased to be back here in the midwest to participate in this Assembly. I grew up in Nebraska and attended graduate school at Purdue University. So, at least, I am a native midwesterner. More to the point, even though I spent six years in Texas and have been in Washington for six years, I find I am still a "spiritual" midwesterner. This has nothing to do with religious connotations and is unrelated to the fact that the "Bible belt" is often said to be centered somewhere within fifty miles of Hueston Woods.

Rather it is because I find, even with this dozen-year hiatus, that I still think like a midwesterner. I still think of the midwest as my intellectual and emotional home. As I have been changing, I find that the midwest has also been changing. The problems and opportunities here in the Ohio River Valley have become those of the nation to a considerable extent. As the theme of your conference suggests, the Ohio River Valley is really a microcosm of the many different challenges facing the nation today.

The Environmental Protection Agency is particularly interested in sponsoring such conferences on intergovernmental energy and environmental cooperation. For the EPA, intergovernmental cooperation is not just a paper goal; it is really a way of life. EPA is probably one of the most decentralized of the federal agencies. Not only is most of the agency's business conducted

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in the ten federal regions around the country, but also many of the responsibilities for protecting the environment have been delegated by the agency to the states. So we have the federal-state relationship as well. Also, in carrying out its responsibilities, EPA must work closely with other federal agencies, such as the Corps of Engineers, the National Oceanic and Atmospheric Administration, the Fish and Wildlife Service of the Department of Interior, and the Department of Energy, to name just a few.

I was pleased to read in one of the background papers that the federal interagency energy and environmental program was mentioned as one way in which federal cooperation could be improved considerably. Since I had a hand in putting it together and have been running it for the last three years, I am glad it was recognized.

My first substantial contact with interstate cooperation came when I was a professor at the University of Texas. I was asked to consult with the Southern Interstate Nuclear Board (SINB), which is a compact of the southeastern states. SINB asked me to help in broadening its purview somewhat beyond the narrow role of promotion of nuclear energy in the southeast. The request came in the latter part of the 1960s just as the environmental program was beginning to emerge.

I am mentioning this and some other experiences to illustrate just how far we have come over the past decade in developing intergovernmental relationships which move across energy and environmental lines.

HISTORY OF INTERSTATE CONFERENCES

During the association with SINB, I assisted that organization in putting together the first of several regional conferences sponsored by the National Science Foundation to examine the relationship between science and technology, on the one hand, and state government, on the other. Chosen as the conference host because it was an existing interstate compact organization, SINB and the participating regional officials benefited from exposure to views typically not available to those associated with the narrower focus of promoting nuclear and industrial growth. Realistically, though, progress toward achieving a higher degree of interstate cooperation in the southeast has been slow. I think it has been characterized by many false starts and many interstate suspicions. One of the lessons we might learn from SINB is that the compact began with too narrow a focus, and it found that it was almost impossible to broaden its scope to take on other energy and environmental concerns that exist in that part of the country. The same kinds of concerns, I think, exist here in the Ohio River Valley.

My second contact with interstate cooperation brought me back to the midwest and portions of the Ohio River Valley in 1970. Professor Boyd Keenan asked me to assist him in organizing the Midwest Regional Conference on Science, Technology, and State Government. The conference, sponsored by the National Science Foundation, the Department of Health, Education, and Welfare, and the state of Illinois, was held in November of 1970 near Chicago. It was well attended by representatives of all of the fifteen midwestern states, and it came at a good time in that there was a considerable amount of political ferment in the midwest. The major theme of that conference, "Achieving Environmental Quality in a Developing Economy," is similar to those topics you will be dealing with here today. The need to develop regional and state responses to meet national needs has become even more critical since the 1970 conference.

TEMPORARY BURIAL OF NEW IDEAS IN EARLY 1970s

Many of these issues were articulated very clearly in background papers prepared for the 1970 conference. But curiously enough, the new ideas, conclusions, and recommendations originating from that conference seemed to go underground. This was a very strange phenomenon in the early part of the 1970s, when so much of the intellectual ferment which had come out of the 1960s was beginning to crystallize and was beginning to move into conceptual form. It was simply buried, and only now do I find it beginning to emerge. Just in the last year, I think, many of these ideas are being recycled. I am looking forward to the period ahead because discussions of these kinds of ideas and the moving toward the implementation phase of some of the suggested approaches will herald an important new period in American life.

Over the past few years there has been one very useful development, and that is the emergence of a number of regional studies undertaken by federal agencies, by state groups, and by interstate groups. Because of the Arab oil embargo of 1973-74, many of these have focused on the interaction of energy and environmental issues. One of the regional studies that we initiated very early when I was with the Environmental Quality Council was a joint study with the Appalachian Regional Commission. Its purpose was to plot the energy flows in the Appalachian area. The study was essentially a prelude to a subsequent study which began much more recently on the environmental impacts of those energy flows. Also, more recently EPA, with encouragement from Congress, began a study here in the Ohio River Valley looking at the environmental impacts of coal-fired and nuclear power plants. This effort, known as the Ohio River Basin Energy Study (ORBES), has been underway for a year and a half. The first year's report is just about finished and will be going to Congress shortly. Lowell Smith, who is on my staff, has been the genius in putting the ORBES project together. Professor Keenan and Professor James J. Stukel of the University of Illinois are project directors. I am certain that you will be hearing about ORBES during this conference.

These regional studies have been useful, I believe, in setting the stage for this next period of the implementation of new ideas. The studies have been providing us with a new data base for understanding the nature of the region and a new view of the Ohio River Valley.

There has been a traditional view of the valley. It was always believed that the up-valley residents and industries were dumping waste in the river which flushed down all the way to New Orleans to be drunk or otherwise used by down-valley residents. Now, as you probably know if you have read the background papers for this Assembly, we do have a new view.

The Bromberg and Fox paper, much of the EPA work in connection with the Ohio River Basin Energy Study, and a number of other papers have indicated that the down-valley residents and industries have been evening things out all the way along. They have been pumping their sulfur dioxide up into the atmosphere to be transported hundreds and hundreds of kilometers, being converted into sulfates in the process. The fact is that most of the winds generally flow up the valley. So the sulfur dioxide down the valley has been flowing up the valley, is converted to sulfates, and is dispersed on the up-valley residents. Some of the sulfates go over the top of the Appalachians and some even go up into Canada and then come back down over New York City. We found this pattern by following the trajectories of the weather fronts which move through, particularly those thick hazy globs that are characteristic of the "dog days" during the summer when the visibility begins to degrade significantly and there are five to ten days of low visibility. What is happening is that all this sulfur dioxide is being converted to sulfates and is slowly moving up to Canada, back down across the Great Lakes, down across the Tennessee Valley area, and in many instances right over the top of Atlanta as it heads out to the ocean.

It is clear that we cannot permit either downstream water pollution or up-valley air pollution to continue in the Ohio River Valley. The fact is that industrial wastes are still coming downstream, sometimes in very traumatic ways. And we can always have air pollution alerts if movement of air masses turns out to be just right and we have the wrong kind of waste up there in the atmosphere. Because the valley is such a critical part of the United States, we do not want it to turn into a wall-to-wall industrial carpet similar to the Elizabeth, New Jersey, area. Some would predict that kind of future for the Ohio Valley. I do not believe that residents in the valley will let that happen, but that they will take steps to bring about rational growth. I believe that this new phase of discussion must revolve in and around the question of interstate cooperation.

NEED TO REMOVE INSTITUTIONAL BARRIERS

I am very impressed with the nature of the task that you have set out before you. It is a truism that even the best of technological and economic solutions will fail unless the institutional barriers to their implementation can be overcome. I think most observers of American society agree that, by and large, progress in technological development has outstripped the capacity of our social institutions to respond. Part of this mismatch can be explained away by noting that we have made many inappropriate, even wrong-headed, applications of technology such that no social innovations could have saved the efforts. There is, of course, no excuse for bad planning or bad engineering. But a good many of the failures in applying twentieth century technologies to solve twentieth century problems have come because our nineteenth or eighteenth century institutions have not been capable of dealing with the twentieth century solutions.

I have read carefully the background papers prepared for this conference and generally have the impression that you have identified most of the key problems. A good selection of possible solutions has been tried in the valley and elsewhere. Nothing leaps out at me as a pat answer to your charge to consider institutional responses to the challenges of the Ohio River Valley. If you do make progress here, I would guess that it would come from hard thinking and hard work. It is obvious, if you are to identify and even recommend some organizational alternatives, you are going to have to balance a multitude of interests which will continually shift and transform as time goes on. Since the field of interstate cooperation in the midwest has generally lain fallow for many years, the task will certainly be a challenging one.

STATE PERSPECTIVES ON ENERGY SITING ISSUES: A NATIONAL OVERVIEW

David W. Stevens

What I want to present here is an update of the governors' policy position on energy planning matters, particularly in the area of energy facilities siting. I shall also outline some of the background elements for cooperative energy policy objectives shared by many governors. Cooperative planning is being undertaken by the governors in the hope that in the next several months we can take action to reduce the negative impacts of some of the problems that have been developing gradually over the last ten or twelve years. Although I am speaking as the staff director of the Energy Facilities Siting Project of the National Governors' Association (NGA), any personal opinion expressed should not be attributed to a particular governor or a group of governors.

We have been asking ourselves questions about the subject of facility siting within the context of broad energy policy: how much power we need, where we need it, what kind we need to have, and where we can put facilities that will have the least negative impact. We find it very easy now to raise the questions that must be answered. But at this point we realize it will require some strong efforts to obtain the necessary consensus, understanding, and ability to implement recommendations that have been proposed.

We must move beyond some of the simple and quick answers that we have been hearing recently from people whose fairly narrow viewpoints have been colored by their personal experiences and agency associations. We must move to a wider perspective. For example, the popular industrial attitude is that most delays in building power plants are largely due to government. This view holds that when the delays are not caused by government, they have been due to intervenors — that peculiar breed of people who are perceived as reducing the ability of the American people to obtain adequate power.

Many environmentalists, on the other hand, have the perspective that they simply have not been given adequate opportunity to sensitize the American people to the most serious issues of our time. They argue that present procedures work against the intervenor. To them, it appears that almost all conditions favor energy developers. Environmentalists also believe that in

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most instances we don't have a need for the kind of power for which industry and utilities are pressing.

Industry and the utilities appear to be saying, "Release us from the kind of restrictions that now prevent us from proceeding as almost everybody really wants us to advance in their best interests." The Nuclear Regulatory Commission (NRC) position has been to tidy up the administrative process, provide some earlier construction start possibilities, and combine some construction permit and operating licenses procedures and similar types of administrative details involved in getting power plants on-line.

The federal government has a prescription that injects massive doses of federal preemption and intervention into the siting process. On the other hand, the states — the "good guys" in this process — suggest that they should be able to strengthen and improve their procedures relating to siting. This should be done, they argue, by recognizing the ability and responsibility of state governments to be involved. Finally, of course, the states argue that federal agencies should accept the legitimacy of the states' conclusions.

NEED FOR STATE PARTICIPATION

From our perspective, one answer is simple. State participation in energy siting should be maximized. Getting to that place, I expect, will take some time and effort. Underlying these positions is a feeling that the federal government may not have the wisdom and the ability to deal with questions and programs that really are the responsibilities of state governments. But of course there are those who plead for a substantial amount of federal presence in the area of energy facility siting. Many of the challenges to federal preeminence in siting are not based on the view that the states are better equipped than the federal government in this area, but derive from a suspicion of government in general.

At a meeting of a Department of Energy gasoline marketing advisory committee recently, we were working on the questions of allocation programs and potential gas rationing. One of the committee members was highly frustrated by what he felt was unwarranted interference with his ability to carry out his job. He wanted everybody to know that he knew exactly what the federal government should be doing. Its first responsibility was to guard the coastline, the second was to deliver the mail, and the third was to stay out of his business.

Perhaps that was being too harsh. Yet, on the other hand, there are some massive problems facing us in regard to relationships with the federal government. If the federal government cannot undertake a uniform service on a nationwide basis in a functional area and make some imprint on that without having a declining service and increasing cost pattern, we must have doubts. If indeed the federal government is apparently ineffective in those tasks which it takes upon itself, one must wonder about its denying authority to those who are at the servicing end of government activity and who have the responsibility to carry out certain tasks. There must be a more satisfactory way to operate.

Without saying too much about the kinds of problems that are now surrounding the whole energy siting process, I want to tell you about the background of the facilities siting project and some of our activities. Over the past several months, we have worked closely with the NRC's Office of State Programs. One year ago, NRC invited the National Governors' Association to work with it in preparing a report on how siting procedures might be improved for nuclear plants. I would like to think that the resulting report was a product influenced by some state viewpoints. Most of that report follows suggestions that the governors are now making.

Although that staff report in my opinion was completed in good fashion, it has not yet been endorsed by the commission itself. If NRC does endorse the report, I fully expect positive results because it reaches the inside of some of these issues and gives the states some fairly good direction.

That study gave us a chance, as working staff of the National Governors' Association, to join with NRC and with representatives of industrial and environmental groups in reaching consensus — with no formal votes taken — on what the key siting issues really are. We made progress in determining how these problems might best be approached and in identifying the policy positions that each of these groups are taking.

Within the NGA's Committee on Natural Resources and Environmental Protection — chaired by Kentucky Governor Julian Carroll — a subcommittee on power-plant siting is headed by Governor Robert W. Straub of Oregon. Its purpose is to look at major aspects of the broad area of siting and to suggest to the national governors a recommended course of action. This subcommittee met in Detroit last month and unanimously passed a policy statement that identifies worthy objectives to be pursued. There is not yet a consensus within the subcommittee on possible legislative action. But I suspect that, as we move down the track, we can get the kinds of legislative changes, starting at the federal level, that will enable us to make needed changes at the state level, both administratively and legislatively.

NEED FOR NATIONAL FUELS POLICY

One recommendation in the subcommittee policy statement relates to the need for the development of a national fuels policy. If we don't establish such a policy, we really don't know where we are going. We won't know what our mix of fuels is going to be, and we won't have any context within which states or regional associations of states can deal with the fuel problem from the standpoint of their own needs. Developing a national fuels policy is a federal responsibility, but it should be prepared with a substantial amount of state input.

The governors' policy statement also encourages the development of a more effective type of energy-planning process at the state level. The primary questions are how much electric power states need and who will make that determination. The subcommittee seeks to achieve the objective of having states make that determination of need, either as individual states — where that can be justified — or on a regional basis. Under such a policy, both federal agencies and public utilities would be required to accept state decisions.

At the present time, the utilities have understandable concerns at the prospect of turning over the site planning process to public agencies at either the state or federal level. Utilities feel uncomfortable with state energy-planning activities, remaining unconvinced that the states are as sensitive to the needs of the people for power as they are themselves. I think that is probably not a valid position, but it is one strongly felt by all the utility representatives with whom I have ever talked. If the states should divest the utilities of that planning responsibility, they must make certain that there is adequate power available. The states would have a responsibility they have never exercised in the past. They would be required to develop capabilities for planning, forecasting, and siting power plants.

Another part of the governors' policy statement is concerned with regional power-plant siting issues. The governors feel there is a need for regional siting groups but not ones that are mandated by the federal government through legislation. Any regional organization established, it is felt, should be flexible, and should be state initiated. It could take the form of an interstate compact. One problem with a compact approach, of course, is the serious time delays from the initiation of a proposed compact to its ratification. The governors are suggesting that in the case of interstate compacts there ought to be a means of preapproval similar to the amendments contained in the Coastal Zone Management Act. If you get to a point where Congress can simply specify various forms of compacts, and the states need no further validating action, then we will have moved a long way toward reducing time that is badly needed to enhance our planning process. So the governors want a regional organization to be flexible. They want it to be encouraged by Congress. And they want it to be politically accountable to the governors.

Another key area of concern is deciding who is responsible for environmental impact reviews. This issue is unclear now because there are mandates at the national level and similar charges to most of the states. Some of the latter are identified as state environmental policy acts. Part of the problem is that states have been pushed into a situation where public officials are doing the same thing at different levels of government.

Responsible officials are presumably coming out with similar findings, but a great deal of time is being dissipated by this procedure. In my previous work as an assistant to the governor of Washington, I was involved in the siting process. A great deal of frustration existed there as federal agencies and state agencies called upon citizens to make "back-to-back" presentations. State siting council hearings sometimes required several days. Frequently, almost immediately after the state hearings ended, the NRC would come in, and the whole process would start with the same cast of characters meeting on exactly the same issues. It just does not seem that intelligent people should tolerate this situation much longer.

The NRC-sponsored report suggests that there be a delegation of responsibility to interested states that could qualify under federal programs to conduct environmental reviews. That is roughly similar to a governors' policy statement recommending that the states should have such review authority and that the authority should be flexible.

We could proceed, for example, under an agreement whereby the NRC and a state could enter into an agreement permitting the state to carry out such reviews. Under such agreement, the states would actually conduct the review, it would then be accepted by NRC, and it would lead to expedited licensing of the facility. In addition, there is a strong need to consider the delegation of environmental reviews when it comes to nonnuclear facilities. If the production of coal is going to increase, we must deal with coal as a legitimate issue. If indeed two to three hundred coal plants are expected to be built in the next ten to fifteen years, then we must have a better process to conduct the environmental reviews for them also.

PUBLIC PARTICIPATION REQUIRED

Another issue requiring consideration is public participation. The governors feel there should be broad opportunities for citizens to become involved in the process at an appropriate time. We don't have an effective process for determining needs. Therefore, the need gets debated at specific site hearings or at hearings for applications. For one plant in the state of Washington, there were five separate public hearings — two state and three federal. And the process could have continued indefinitely simply because there is no ending point. You can have the first state hearing, and then some new information causes the state to call still another one or two hearings. Finally, the federal government holds a hearing, and it's probably the wrong time to be discussing the whole issue in the first place.

We feel there ought to be ample opportunity for people to get involved in debating the issues, but the involvement should come at the right moment. The planning decision should be made in advance of a facility application.

We need to get the process in better order so the individuals can make their presentations, obtain information, and raise relevant questions.

Early site reviews are recommended in order to separate broad issues from the site specific question. One recommendation is to make the federal government more cohesive in its approach to siting questions. The NRC report, I think, fell a little short in its recommendation that there be a "coordinated" approach among the federal agencies in siting practice. I believe that is valuable, but the report recommended that the states get together and have a one-step approach. If it's good for the state, it's probably good for the federal government. We recognize that this may be a little more difficult to carry out at the federal level, but we certainly encourage a much more highly coordinated effort.

The national administration has been drafting legislation that is carrying forward many of the concepts contained in the governors' policy proposal. But some of the language of the administration's proposal falters a bit when it talks about the provisions that would implement the objectives and goals of the bill. For example, the states are given authority to determine needs for power within the state, to undertake environmental reviews, and to encourage regional forms of energy planning and coordination. However, some drafts of the bill include a rather "heavy-handed" section on how the states would go about carrying out these responsibilities. Upon the whim of a federal official, a state's decisions could apparently be preempted in total, or at least in part. The federal government could not only preempt what the states were doing but it could also preempt a state's ability to analyze *any* kind of impact of a proposed facility. Those kinds of actions on the part of the federal government obviously would not set well with the nation's governors.

We hope to be in a position of influencing future drafts of this proposed legislation. We will push for full state participation in the energy siting process. We desire a genuine partnership situation which will not disregard a state's interest. There is simply no way to proceed further in siting operations without the more active involvement of state governments.

TIMING IS RIGHT FOR CHANGES

Broad planning for sites and the question of energy needs must be faced by the states with the cooperation of the utilities and the industries. Dr. Gage mentioned earlier today that at conferences such as this one, many pressing issues are brought up but then often go "underground" with the closing of the conference. The regional aspects of facility siting relate to the broadest energy problems facing this country, and we should not permit the regional and intergovernment approaches discussed here to go underground. These problems will not be met effectively unless the states react more positively in a regional context. And for this Assembly to be successful, there must be recommendations forthcoming so substantive action can be initiated.

We can indeed move forward in modifying some of our political institutions at both the federal and state level to make the siting process move more smoothly. We must establish the necessary planning capability, obtain adequate information, and develop an appropriate political structure. Political and institutional changes occur when the timing is right. All things considered, now is that appropriate time.

ANOTHER LOOK AT THE INTERSTATE COMPACT: "A SUPPLE DEVICE"

Eugene F. Mooney

I am delighted to have this opportunity to speak to you on three of my historical interests: (1) intergovernmental cooperation, (2) the environment, and (3) energy. I use the adjective "historical" because in my last lives I have had some bitter experiences with all three, which I will subsequently relate. But before I do, I feel you should be made aware of the kind of person I am and what some of my predispositions are toward the subject of our Assembly.*

While I am now a good, gray state bureaucrat, in real life I am a good, gray law professor. Law professors, as you know, can be defined as men with their heads in the clouds and both feet planted firmly in midair. My feelings about our subject of intergovernmental cooperation can be summed up in a paraphrased proverb:

— The Congress knows *all* the state's problems and addresses *all* of them with federal legislation which does not apply.

— The President knows *none* of the state's problems and addresses *all* of them by creating a new federal agency.

— The Supreme Court knows *none* of the state's problems and addresses *none* of them by interpreting the commerce clause to eat up the rest of the Constitution.

— The states know *all* their own problems and address *all* of them — one day too late.

My scholarly research into the subject of intergovernmental cooperation to solve environmental and energy problems can be summarized by the following apocryphal tale:

THE FEDERALISM PARABLE

Long before time began we started addressing the twin problems of energy and environment. You will recall that the Primeval Family lived in perfect

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* Editor's Note: This paper is based on the author's "after dinner" address delivered during the Assembly. Many listeners urged that the original remarks — though unconventional — be carried in the Assembly proceedings. It is hoped that the style and tone of the presentation have been preserved.

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harmony in a pristine environment. The Primeval Father got all the choice cuts, did a little hunting and fishing when he felt like it, and sailed his beer cans into the river. The Primeval Mother cleaned the fish, gathered the wood, did the cooking, and tended to all the Father's needs. The Brother Clan mostly laid around camp bickering all day and sat up most of the night drinking and playing cards.

One night the Father came in from a bad day in the forest to find that the fire was out, supper wasn't ready, and nobody had carried out the garbage. When he demanded an explanation, the Mother said, "Henry, we've done burnt up all the close-in wood, and I ain't got time to get all this work done. Besides, that bunch of lazy louts don't turn their hands to help."

When the Father confronted the Brother Clan, they said, "That's not our job; besides, the Great Spirit will provide." The Father grew wroth and shrieked at the Brothers, "Get out and find some firewood and clean up this messy place and no talking in the ranks. You get no supper 'til it's done." Well, you know what happened then. The Brothers did talk in the ranks, revolted, killed the Father, confiscated the Mother, and moved on to wander in the wilderness for several millennia.

After a while recorded time began, and the Children of Israel struck a deal with God over the Promised Land. In return for a fee simple to a land flowing with milk and honey, the Children agreed among themselves and with the Party of the First Part to the Ten Commandments. The Parties of the Second Part could make supplementary agreements among themselves, but major deals had to be cleared with God.

The Children did well in the milk and honey business, but then decided to go into goats as a cash crop without asking the Lord. Then Jeremiah pointed out that this was a violation of their contract, that goats were hard on the land, and all you had to do to live was pick up the milk and honey. But the Elders said, "That's an awful lot of work and it's not seemly for the Chosen People to be working in the fields. Besides, the Lord will provide."

Well, pretty soon the goats ate up all the grass. Then the Holy Land turned into a pile of sand, and the Jordan River began running into the Dead Sea. When the Children demanded something plentiful to eat and some quick, easy way to cook it, the Lord sent them down a horde of locusts followed by fireballs from the sky. The Children commenced lamentations and prayer, and the Lord threw up his hands and said, "You are a stiff-necked people." Then he turned the farm over to Caesar, who moved the Christians to Rome and put part of them to work at stoop labor and the rest of them into show business in the Coliseum.

After the Middle Ages we invented nation-states and put them in charge of everybody's health, safety, and welfare. In Merrie Olde England it was the divine right of the King to hunt the Great Stag, catch the leaping trout, and collect exorbitant taxes. To keep his relations happy, he subdivided the country into shires and gave his cousins one each, admonishing them not to be conspiring against him. Then the Royal Foresters cut down Sherwood Forest to build cities. The Royal Engineers dammed the Thames River for a grist mill, and the Royal Environmental Protectors drained the Great Swamp to kill the mosquitoes.

Then the People said, "Wait a minute, what are we gonna do to live and where we gonna do it?" The Barons responded, "Move to the City to be near the conveniences and fear not. The King will provide." Pretty soon the Great Stag emigrated to Scotland, the leaping trout turned into a carp, and salt water seeped onto the water table. When winter came, the people had to eat seaweed. All the fires went out, and they had to put on heavy wool cloaks and button up their shirt collars to stay warm.

Next they went before Good Queen Bess and said, "We're cold and hungry and broke. What are you going to do about it?" Good Queen Bess called on Sir Walter Raleigh to solve the problem. After he sucked on his pipe for a while, he said, "No problem. We'll invent factories to make food, and you can burn coal to keep warm."

"Coal," the People asked, "what's coal?" "It's them black rocks layin' around everywhere," said Raleigh. "All you have to do is gather them up and set 'em on fire." The people asked, "Who ever heard of burning rocks?" So they threw Raleigh in jail, burned their cloaks to stay warm, and sailed off to Massachusetts in disgust.

So you see, when we all came over to America, we knew just how to handle these kinds of situations:

First. Enter into a covenant with God to get clear title to the farm. Then subdivide it into states and don't permit talking in the ranks.

Second. Cut down all the trees, change the color of the rivers from blue to gray, and set a herd of factories on the countryside.

Third. When you get cold and hungry, go to the Kentucky Fried Locust Place and try to stay warm by burning rocks.

Finally. Don't get together and work out anything about energy or environmental problems. Instead, leave it up to a federal "czar" because the Great Spirit, or the Lord, or the King will provide. And if they don't the Romans will.

INTRODUCTION

The real governmental world we have erected is almost as insane as my little parable. Think for a moment of the realities of environmental protection, energy production and consumption, and jurisdictional boundaries. When we settled this country, its geographical characteristics dictated the basic patterns for all three of these matters. We built our major cities adjacent to the principal sites for commerce and along natural transportation routes. Those were, and still are, our large rivers and lakes, plateaus and mountain passes, estuaries and harbors. At the same time we established our basic political boundaries in light of these same geophysical features.

We now find that virtually all our major cities — those elephantine metropolitan engines which both produce and consume most of our energy and produce, if not consume, most of our pollution — are located on interstate waterways. They sprawl on all sides of these waterways, always spreading into two states and often three. Cities generate concentrated air and water pollution, produce ever-increasing amounts of solid waste, noise, and congestion, and occupy larger and larger amounts of land with their highways, subdivisions, and industrial plants. Their energy demands are insatiable, requiring multiplying megawatts of electricity, millions of cubic feet of gas, and oceans of oil. They thereby require more extractive mining, huge generating plants, and giant transportation and transmission facilities. Both gargantuan energy demands and multiple pollutions of the cities burden their own air, water, and land, and they transmit their effects elsewhere.

Yet neither the nation nor the state has effective control over these prodigious appetites for energy and sources of pollution or over the interstate transmission media. Though the federal government has the commerce clause, it has no police powers and thus no land-use authority over nonfederal lands. Each state has police powers and land-use authority within its political boundaries but not inside another state and not over interstate commerce.

THE PAST IS PROLOGUE

Three times in the past decade the nation has suddenly discovered social crises relating to these fundamental matters and, like a banana republic, has forthwith declared war on the problem.

Discovering in the mid-1960s that many of our people were poor, unemployed, and unsightly, the federal government declared war on poverty and set forth to stamp it out, root and branch. It asked the computer to define poverty, locate it, and suggest solutions. Unerringly the computer said that poverty was the lack of money; it was located where poor people lived, mainly in the ghettos and in the mountains of the South. It traced out areas on the map, and the solution was for the state to erect categorical assistance programs to tear down their shacky houses, build interstate highways, and put everyone on the dole. To do this, it expanded all its existing agencies, created multicounty development districts for our three thousand counties, and chartered such regional agencies as the Appalachian Regional Commission (ARC) and the Title V commissions to help spend the money.

In the early 1970s the federal government discovered that the nation's air was dirty, its waters contaminated, and its landscape cluttered. So it declared war on pollution and set forth to stamp it out, root and branch. Building on the success of its war on poverty, yet learning from its mistakes, this time it created a single federal superagency to administer the regulatory programs and asked the computer where the pollution was and what could be done about it. That marvelous instrument discovered that the interstate rivers and airsheds were contaminated by all these unsightly cities, and that the federal government should order each state to clean them up forthwith. But even the computer could see that no single state could deal with an interstate river, airshed, or city. Therefore, it decided that a federal superagency should be created and a "pollution czar" be put in charge. Consequently, the Environmental Protection Agency (EPA) designated over a hundred interstate air quality control zones embracing our major cities, required comprehensive river basin planning, and threatened firmly to cut off federal funding or preempt the field to make the world clean for democracy.

Now the federal government has discovered that our energy demand is outstripping our supply and has declared "the moral equivalent of war" on this new crisis. Going back to its trusty computer, which has learned a thing or two over the years, the newest campaign is starting. It has moved resolutely to create a new federal superagency, installed an "energy czar," ordered the states to solve the energy crisis forthwith, and threatened to cut off federal funding and preempt the field unless the states make the world energetic for democracy.

But what is there new about all this? What is the federal government going to do for an encore? This time there are definite federal program goals, not just loose language about economic gains and a cleaner world. This time national energy consumption growth is to be reduced to 2 percent annually. Coal production is to be doubled by tomorrow, and everyone must insulate their houses by winter. Nothing yet has been said about interstate power plant and transmission line siting, fossil fuel production and transportation, or the concomitant pollution and economic development problems inherent in these contradictory goals.

There is a pervasive feeling of déjà vu about all this. Somehow I just can't work up too much enthusiasm. One suspects that the federal computer is going to dictate state "energy plans" and, again, is neither going to address the underlying interstate realities nor allow anyone else to do so. At least they took that position the last time around during the last "crisis."

THE START OF THE BALL GAME

Think back to the summer of 1970. Two years prior to that time the war on poverty had been consumed by the flames of Watts and Detroit and a dozen other cities. The environmental crisis had just been discovered. President Nixon was creating EPA by executive order; Congress was amending the

Clean Air Act and Water Pollution Control Act into new forms; and the ten federal administrative regions were being designated by and for the Office of Management and Budget. One could smell new federal guidelines, requirements, and programs in the air.

The federal environmental protection statutes dealing with air pollution, water pollution, and solid waste all charged the states with the job of implementing the new federal program. Indeed, this was necessary because the computer had discovered that only states and local governments have the power to regulate smokestacks, build sewers and locate landfills. The federal laws spoke highly of intergovernmental cooperation, expressly eschewed federal preemption, and designated the interstate compact as the chosen instrument for addressing problems of multistate and interstate pollution. The federal government would choose the criteria and set permissible national pollution standards, and the states would enforce them with federal funds, expertise, and the threat of preemption to back them up and stiffen their spines.

It was a bold and magnificent conception, but, alas, it was never to be. Most of our pollution problems lay squarely across state lines, and we have only the creaky constitutional machinery of the interstate compact to deal with them. You will recall that Article 1, Section 10, of the United States Constitution allows interstate compacts but says, "No state shall without the consent of Congress . . . enter into any agreement or compact with another state, or with a foreign power. . . ." This is no prohibition to be taken lightly, as Jefferson Davis came to understand. Yet the compact is the *only* method sanctioned by the Constitution for legislation concerning problems in an area less than the entire nation and larger than a single state. It was called a "supple device" by the late Mr. Justice Felix Frankfurter.

However supple a compact might be after creation, it is cumbersome to fashion. The average compact takes eight years for negotiation, enactment by the party states, and approval by Congress. The more significant the compacts are, the longer it takes to establish them. For example, the Delaware River Basin compact took over fourteen years to form. While we have formed over two hundred interstate compacts and almost one hundred fifty are still in existence, most of them either settle state boundaries or are only advisory agencies carried over from the 1920s and 1930s before the New Deal. Even the federal computer could see we were not likely to create another two hundred interstate compacts to cover a hundred interstate air quality control zones, fifty or more interstate waterways, and another fifty or more interstate solid waste collection and disposal areas. This is not to mention the difficulty of creating interstate compacts to deal with the ubiquitous powerplant siting problems.

AN ATTEMPT AT FLEXIBILITY

In the summer of 1970 the Southern Governors' Conference proposed an "Interstate Environment Compact Act" as the only rational and feasible way to give effect to the congressional intent underlying new federal environmental programs. The governors' concept was elegant in its simplicity. It was innovative, yet drawn from existing legislation, and would have added new flexibility to the "supple device." The proposal, Senate Bill 907 of the Ninety-second Congress, was introduced by the late Senator John L. McClellan of Arkansas in February of 1971, with over thirty cosponsors.

If passed, the measure would have given congressional consent in advance to the terms of a compact which any state could join and would have authorized the party states to enter into supplementary agreements among themselves to address "interstate environmental pollution" programs. Such pollution was defined as "any pollution of a stream or body of water crossing or marking a state boundary . . . pollution of an interstate air quality control region." The proposal also related to solid waste disposal programs participated in by more than one state and "land use practices affecting the environment of more than one state." The last phrase was included to permit agreements among states concerning electric power plants and transmission line sitings.

OUR LAST TIME AT BAT

There was nothing particularly innovative about this "advance compact" consent legislation, not even the supplementary agreement feature. About a dozen advance consent statutes now exist, and the supplementary agreement feature appears in the Southern Interstate Nuclear Compact, the Interstate Compact on Juveniles, the Interstate Compact on Mental Health, and the Tennessee River Basin Water Pollution Control Compact. Combining these features and leaving to the party states so much flexibility concerning what kinds of agreements they could have *was* innovative. Signatories could have devised a simple agreement covering regulation of an interstate fishing stream or a complex agreement covering air–water–solid-waste planning. The latter type of planning could have been directed by a multistate agency with responsibility for regulation and construction of facilities. A compact could have been used in conjunction with an existing river basin commission or utilized to create such a commission where needed. Once approved by a state legislature, the compact would have permitted supplementary agreements to be negotiated by the governor, subject to disapproval by the legislature.

Although all manner of prohibitions, protections, and protestations against federal supremacy were included in the bill, fierce opposition developed from an unusual alliance. The Nixon administration and many environmental protectionists joined hands in opposition. Through Senator Edmund Muskie of Maine, the EPA insisted on appending a right of administrative veto of supplementary agreements by that agency. When it was realized that such a veto would breach the constitutional provision that such approval must be given by Congress, the EPA reluctantly retreated on that issue. Next, however, the bill's opponents insisted on provisions for both congressional and presidential vetoes with regard to supplementary agreements. A public hearing requirement, conflict of interest provisions, and guaranteed participation by environmentalists were also inserted. With all these provisions attached, relevant or not, the Senate passed the act unanimously in September of 1971. Federal regional commissions and "old-line" federal agencies were particularly unhappy with the Senate's action.

Then came the House. The same opponents presented more objections, new requirements, and further obstructions. They finally defeated the bill by bottling it up in the House Judiciary Committee. Its chairman, Representative Emmanuel Celler of New York, still smarted from a run-in with the New York Port Authority in 1950 and therefore apparently hated *all* interstate compacts.

In the meantime, the seventeen states and territories of the Southern Governors' Conference had already adopted the compact by legislation in anticipation of passage by Congress. The idea was beginning to catch on with the midwestern and western governors' conferences. But the bill was dead by the time the National Governors' Conference met in November of 1971.

CONCLUSION

As I recommended to the midwestern governors earlier this year, I believe the Interstate Environment Compact Act should be exhumed and added to the proposed National Energy Act. As now developing, the new federal energy program is modeled on the nation's environmental protection program and has the same conceptual flaw of neither adequately addressing interstate problems nor providing regional frameworks for solutions. As your able background papers suggest, a TVA solution for the Ohio River Valley is not a likely prospect nor — I believe — a desirable one.

Expanding an existing anti-poverty agency like the ARC to handle energy problems in the Ohio River Valley would be only a little more sensible than asking the Department of Energy or the Corps of Engineers to assume the task. Renovating the Ohio River Valley Water Sanitation Commission (ORSANCO) or strengthening the Ohio River Basin Commission (ORBC) may offer some possibilities. In any event, though, they should be utilized chiefly as planning, clearinghouse, and housekeeping agencies for the affected states. But these latter two agencies (ORSANCO and ORBC), combined with the Interstate Environment Compact Act, might well provide an effective intergovernmental mechanism for addressing multiple problems of the valley on a regional basis.

Incidentally, I suspect that regional economic development banks, as being proposed in some circles, are not adequate to deal with the kinds of regional problems being addressed at this Assembly. What is needed is a *regulatory* framework, not a soft money lending agency.

One final remark which may or may not stir this boiling pot. As you know, the state of Virginia in 1872 granted to the new commonwealth of Kentucky all the land west of the Cumberland Gap and to the low-water mark of the north bank of the Ohio River. Twice in the past hundred years the United States Supreme Court has held that the grant legally places the Ohio River under Kentucky's regulatory jurisdiction. The most recent decision was delivered in 1973. Under that interpretation, we in Kentucky consider that we should have something to say about the use of the water in the Ohio River where is borders Kentucky. This is true at least insofar as the subject has not been preempted by federal legislation.

The way I read existing federal laws, the Corps of Engineers and Coast Guard regulate what floats on the Ohio River, EPA regulates discharges into it, and the commonwealth of Kentucky can regulate withdrawals from it. Perhaps on that vague threat I should close as I began:

> If we don't get together and work out our regional problems, the Great Spirit or the Lord or the King *may* provide — but it's more likely Mr. Schlesinger will.

MORE ABOUT ENERGY "BALKANIZATION"

Representative Mary O'Halloran

My remarks at this Assembly are based entirely on my own personal reflections and experiences as an Iowa state legislator responsible for energy legislation. I believe that I am close to my constituents and have a feel for their concerns regarding the energy situation. I am concerned that we develop an effective national energy policy and support our President in his efforts to establish such a policy.

Those of us in government do not often enough express what we really think. We are so pressured into using buzz words and taking on the attitudes of others and keeping up with the Joneses and the bureaucracy. Thus, very infrequently do we take time to set ourselves apart for a bit and reflect about what we *really* think. Rarely do we think about where the country is going and about the relative position of the states and the federal government in this awful business. By "awful" I mean the terribly frustrating business of governing and governing well. So if my remarks seem sharp occasionally, it is only out of my own frustrations and only because I think we have to speak honestly about what we actually experience in our lives as government officials.

I am very disturbed, sometimes, by the language we all use which frequently keeps the people — those we are trying to serve — from understanding what their government is. For example, the civil rights director in our state is going to have a conference in Des Moines. District administrators in the civil rights bureaucracy will go to Des Moines for this workshop. And do you know what they are going to do at that workshop? According to the *Des Moines Register,* they will "resource" each other. That is a new one. One phrase I frequently hear is "prioritizing our viable scenarios." If we would just call a moratorium on the meaningless babble that we so easily fall into. Often we use it to avoid saying what we really think. Sometimes we use it to confuse, and sometimes to avoid offending. But more often than not, the cumulative effect of this kind of language is to separate government from the people because the people don't talk like that, nor do they think like that. When people are called together to "resource" each other, what could

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that possibly mean? So I have been working on my language because I think we can only bring about change by doing things ourselves.

We are all aware that the age of plenty is over for those dependent upon energy, land, and water. Those who are "in the know" in the field of energy tell me that within the next seven or eight months three things could bring about another severe crisis with regard to energy delivery systems in the United States: (1) an embargo (which, if one follows Middle East politics, seems more and more likely), (2) another cold winter (which also seems likely), or (3) a possible coal strike. And, as I understand it, coal-mining contracts are up at the same time this year.

REALITY OF DEPRESSION, REVOLUTION, WAR

Given the situations we may face, I think we have a responsibility to do some reflecting. I've reflected on some reports from the Massachusetts Institute of Technology, the Central Intelligence Agency, and Congress's Office of Technology Assessment. All three of those reports come to the same conclusions — and they use almost the same words — that, if we do not act, we are bound to end up in a situation of depression, revolution, or war. You and I understand the possibility of those words becoming a reality, but my constituency in Cedar Falls, Iowa, does not understand the possibility of that reality. They do not believe it's possible. They think the energy "crisis" is a hoax. They are not about to support any actions that would preclude any of those three words becoming reality.

I think we are indeed involved in something called a crisis. Unfortunately, we face this difficult situation at a time when our governmental institutions are held in anything but high repute. There is great cause for pessimism. Unless those at the state, local, and federal levels begin to work out new forms of government, we will not make it through the period of energy crisis — or perhaps more accurately a period of energy conflict — without severe damage to our governmental system as we know it.

There is evidence on all sides that democracy is not well suited for times of scarcity. If one looks around the globe, it is hard to point to a place in the world where democratic processes and democratic institutions are healthy and where, at the same time, there is a scarcity of natural resources. They don't seem to go together very well. What is that? Is there something wrong with our system of government? I don't think so. Democracy is designed to be responsive. You hear all of us politicians say it. When we go out and run for office, we must *respond* to the electorate. Well, the electorate isn't saying anything about energy except "Don't bother us about it because it is all a hoax." So how can I respond? The problem is that simple.

We are trapped in an economy and a consumptive psychology based on the assumption of infinite supply. Ordinary people believe that they will always be able to waste resources. With faith in technological salvation, they feel there is somebody in Kansas — or sometimes he is in Peoria — who has invented a carburetor that would have prevented all this. But what happens when the politicians enter into the scene? We are caught up in blame cycles or in conspiracy theories — perhaps more fairly described as abdications of responsibility — which I like to call "press release government." We should be held accountable for that. The problem is that there is no one out there to do it. We are, in fact, responding to the people, and there is great danger in it. When something goes wrong, the county commission blames the city council. The city council blames the state legislature, the legislature blames the governor, the governor blames the Congress, and the Congress blames the President or the bureaucracy, depending on party affiliation. If we don't stop it, this could destroy the system we have worked so hard to protect.

Let me give you an example in the form of a meeting at the White House this spring. There were five governors, six county officials and legislators (including me), and some city officials. We were called to the White House for "input" from which they were to get "output." We were going to "prioritize" and "resource" ourselves. In truth, we were there because we were politicians. We were there so that we could go home and create political support for the President's energy program.

At any rate, you should know that the National Governors' Association and the National Conference of State Legislatures share a big white building in Washington. From that building we all got ready to go to the White House to talk about how desperately the country needs to save energy. To my surprise, down the street came five or six black limousines, chauffeur driven! One by one, the governors got individually into their limousines to be taken to the White House to discuss energy conservation. The legislators, of course, hailed a cab. (I thought that was patriotic of us.)

After participating in this meeting, I wondered a lot what it all had to do with the country's well-being. The President and Energy Secretary James Schlesinger explained why they needed our support. They emphasized the seriousness of the situation as they saw it, and the absolutely irrefutable fact that at any time the Arabs could bring this country to its knees.

BEGINNINGS OF "BALKANIZATION"

Sitting around this table was a group of fairly respected people from around the country. One governor, whom I had previously respected, interrupted the President by saying, "Mr. President, I will not support your policy in any way, shape, or form." He pounded his fist. "Do you realize what this will do to the tourist industry in my state, Mr. President?" A mayor did the very same thing to Secretary Schlesinger a few minutes later. "Do you realize, Mr. Secretary, what this is going to do to my squad car fleet?" Then a council-man from California suggested that California ought to have a separate rate of rebate on the suggested gasoline tax. After all, "We built our society around the automobile, and it would be a special hardship." And that is when I heard Mr. Schlesinger say "balkanization" with a tone in his voice that made me remember the word. "We are not going to balkanize this country over the question of energy," he said.

The sad fact of the matter is that the country is already balkanized. It is accomplished, in fact; it is indeed how people think. Let me tell those of you from Ohio of Iowa's feelings toward you. Our industries switched to liquefied natural gas in Iowa last winter which, by the way, had to be paid for by the rate payers *in* Iowa and later used for part of the country that had not done its planning. Like anyone else, the only way I can make a judgment is from public appearance and what I read in the paper. I read that a governor did not know what his own authority was in the energy area when he gave an executive order. At such times I begin to agree with those who suggest there ought to be *more* federal control rather than less. All of us who scream for local grass roots control of this question ought to ask ourselves whether we are really capable of making the decisions that our own constitutions and our own laws allow us to make. We pass the buck just as fast as any congressman!

I chair the Energy Committee of the National Conference of State Legislatures. I am opposed to Congressman Dingle's policies on the federal authority and the new scheme he has designed for state-federal relations with regard to utility rate regulation. I put it to the legislators on my committee: "How many of you are willing to fight this proposal, and how many of you are willing to work in your own states and see what can be done on conservation rate design?" It would be so much easier to let the federal government do it. If it doesn't work out, blame them and let it go at that. Not many states have made a great deal of progress with regard to designing their own conservation rates, regardless of what that rate structure may be. Some states are moving in this direction — along with the National Association of Utility Rate Commissioners — but only in response to a federal threat. What does that say about grass roots responsibility?

SOURCES OF PESSIMISM

The reason for my pessimism is that I don't see any way out of our dilemma. The democratic process is crisis oriented. We respond as politicians very well and do a good job in a crisis. Just give us a flood. We are terrific. We get that aid in there, the governor flies over, and we bring in the payments. But frankly, the democratic process is not designed for planning for the future. The energy crisis, the energy problem, the energy conflict — whatever you choose to call it — does not lend itself to our democratic process. And it is up to the people like you and me to design ways — creative ways, perhaps new ways — to be faithful to what our Constitution says and requires of us and at the same time get the job done. I'm not certain whether that is possible or not. I don't know. There is no political pressure for us to act, and we only act under pressure. That's the way it's all designed.

How do we achieve legislative foresight as well as oversight? No one has even begun to answer those questions.

I had a particularly interesting experience in dealing with these questions recently at a conference in New Orleans. The purpose of the conference was to explore whether the states have any role in siting high-level waste depositories. Now maybe there is a role for the states and maybe there isn't. But what brought the U.S. Nuclear Regulatory Commission (NRC) to that meeting? Why did they organize it? It was partly because the National Conference of State Legislatures asked the NRC to do so for the purpose of educating legislators on the technological questions involved in disposing of all this high-level waste we have, both military and civilian.

But what really made NRC organize the conference was the fact that the states were passing laws saying *you should not* place in my state one of your depositories. I think the NRC woke up one morning and saw that some states had exercised their legitimate power. Now whether it is constitutional, whether any federal court is going to hold those laws constitutional, is another thing. The state legislatures perceived they had the power to pass laws prohibiting the siting of any depositories in the states. As I understand it, Louisiana and Minnesota — among others — have some rather stringent regulations after their last legislative sessions.

The real question is this: Are we going to be able to make this elaborate federal system work in view of the energy problems? I think this is crucial. I've been told that there is a possibility, for example, that by 1983 we may have to close some nuclear plants because no repositories have been sited for high-level waste in the United States.

Interestingly enough, the federal government is just now holding regional meetings with state officials, legislators and executive branch people, even though the site suitability criteria for those depositories are almost ready to be approved. That says something. What did they expect? How dare they take the country's future in their hands? We've got to deposit that material. We've got to solve that problem. But ignore the states? Leave the states out of it and there will be a severe reaction. There will be demagogy with bills passed that will crowd the court dockets for interpretation before they can be implemented and before the problem can be solved. So in the absence of what we might describe as "authoritative participation" upon the part of some states, state legislatures are already reacting to potential federal preemption. This is occurring not only in the area of siting of geologic storage facilities but also with regard to the transportation and monitoring of high-level nuclear waste storage.

NEED FOR LEGISLATIVE INVOLVEMENT

At the New Orleans conference, one EPA representative said the agency didn't have legislators involved in its part of this process (as I understand it, EPA must develop environmental criteria for the sites) because legislators didn't need to be involved in "philosophical preparation." All the more appropriate that elected state officials be involved at that level than at the technical level! After all, if state legislators have not reflected about the relationship between federal and state agencies they probably ought not to be in the legislature.

The major questions in this nuclear waste area are: Should the host states be compensated, perhaps by payments in lieu of taxes? What about states involved in transportation avenues? Should they be compensated in some special way? Who pays for this storage of high-level waste, rate payers or the taxpayers? Who will decide that question? Interestingly enough, throughout the whole discussion of this matter at the New Orleans conference no federal official discussed the cost of high-level waste storage in the country and who pays. We had to drag out of them a problem with which state officials have always been familiar.

I use the example of siting nuclear fuel waste depositories to show the urgency of dealing with some of the energy problems before the problem proceeds to the point at which there is no hope. Do you recall the problem of NRC siting in Lyons, Kansas? They chose a deep geological site and did not consult the state geologist. The effect of that one piece of neglect on the part of NRC was to set back the whole process of disposing of nuclear waste by several years. That particular site was a terrible selection. It was discovered that there was water running through this location and all kinds of other underground activity which the state geologist of Kansas could have told NRC about in one phone call. Kansas officials reacted! The effect of this incident was that other states began to react, and it set back the solving of this problem by perhaps seven years or more.

There are some things we can do. Occasionally I think we should be a little more positive. Why couldn't NRC say to the states: "Listen, state governments, why don't you put all of your sites in a bank? Bank the sites and give us ten or twelve sites from which to choose." What is wrong with that kind of approach? Why not let the states pick? Or why doesn't the federal government give us five or six sites in the state and let us pick the one we prefer? That would not be terribly difficult. On the other hand, the states will have to assume some cost if we are going to be that involved, and then we will have to be accountable for our decisions. We always want it both ways. We want the authority at the state level, but we don't want to pay for doing the job. But we will have to pay for it.

In the area of utility rate regulation, why couldn't the states help in such matters as setting conservation rates and life-line rates? The federal government could provide guidelines and technical assistance and set a deadline for the states to develop the program. But the important thing is to give each state an opportunity to develop its own conservation program to suit its particular needs.

I am impressed with much of the creative research and technology underway by the federal and regional agencies. For example, the Southern Interstate Nuclear Board is doing some fine work. As I understand it, they are doing pioneer research in heat pump technology. I also think the work they have done on the concept of nuclear energy centers is interesting. The old Atomic Energy Commission, the National Science Foundation, and the NRC have all also produced interesting studies on the nuclear park idea, covering its technical, economic, and institutional problems.

NEED FOR POLITICAL DECISIONS

However, when it comes right down to siting a nuclear power plant, when it comes right down to the politics of the siting, state government is needed. The states must develop the specifics. I think this points out a couple of things. First, it shows the limitation of the federal planning capacity. Second, it shows the necessity of political responsibility residing in the states. If all of us could just get over this abhorrence we have for the word "politics," and admit certain questions are political! We cannot just sit and advise each other any more. There is a point at which political decisions have to be made. And politicians should be pushed to make them. Top leaders in the executive branch should also be pushed by those in the administrative agencies to make decisions. The example of what the states have done with the energy center concept is not necessarily an argument for regional decision making. But I believe it is an argument for reinforcing the traditional concept of keeping decision making and political power inseparable.

At the New Orleans conference several administrators from the NRC suggested that new regional entities be set up to deal with the question of high-level nuclear waste. Some of us fought that tooth and nail. Sometimes the reason people want to talk to us in regional bodies is that regional bodies do not have any authority. If the states get too involved with regional assemblies, they are politically separated from their constituencies and from the place where their real authority resides. I asked an NRC staff member why the agency didn't deal with the states separately. "All fifty?" he asked. I said, "All fifty."

I believe regionalism at its finest is organic. It is a regional activity that arises out of a felt need and real political unity — not out of some kind of effort of a federal agency to help us solve *its* problem when we are removed from our own political base.

In summary, what I am trying to say is that I believe we sometimes have to reaffirm our sense of patriotism. I don't want to be maudlin, but we all read the same civics books and we all love our country. But sometimes I wonder whether we are willing to sacrifice *anything* for it — whether Iowa is willing to sacrifice *anything* to see that the country makes it through the 1980s. If all of those bad prophecies come true, we will be sitting thinking, "Why didn't we give up a little of our natural gas so a million people might not have been out of work?" Unfortunately, the time when this patriotism will be needed is a time when it is least likely to come. And those of us in the government have a responsibility to do what is required, or I am afraid we will all regret it terribly.

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